SPECIAL PROVISIONS
&
SUPPLEMENTAL SPECIFICATIONS

CSI-Inch/Pound

Project No: **CM-LC49(86)**

Name: **PROVO AREA OPTIC AND WAN**

ITS/ATMS Traffic System Management

County: **UTAH**

Bid Opening: **November 08, 2005**

Date

MANDATORY PRE-BID CONFERENCE

Date: October 05, 2005

Time: 10:00 am

Location: Provo City Engineering Department
Downstairs Conference Room
1377 S. 350 E., Provo, Utah

Conference attendance is a requirement for bid submission.

UDOT
GOING THE EXTRA MILE

2005 - U.S. Standard Units (Inch-Pound Units) July 12, 2005

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Project #CM-LC49(86)

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17.	Section 13594M:	Fiber Optic Communication
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I. 2005 Standard Specifications

The State of Utah Standard Specifications for Road and Bridge Construction, U.S. Standard Units (Inch Pound Units), Edition of 2005 applies on this project as a static Specification Book as well as all other applicable specification changes.

Refer to Part XIII (Special Provisions and Supplemental Specifications) for other project specific specifications.

II. List of Revised Standard Drawings

Change One

Revised February 24, 2005

AT 1	Legend Sheet	02/24/2005
AT 2	Ramp Meter Details	02/24/2005
AT 3	Ramp Meter Sign Panel	02/24/2005
AT 5	Ramp Meter Loop Installation	02/24/2005
AT 6	Conduit Details	02/24/2005
AT 7	Polymer-Concrete Junction Box Details	02/24/2005
AT 8	ATMS Cabinet	02/24/2005
AT 9	ATMS Cabinet Disconnect And Transformer Frame	02/24/2005
AT 10	CCTV Mounting Details	02/24/2005
AT 11	CCTV Pole Details	02/24/2005
AT 12	CCTV Pole Foundation For Dedicated CCTV Pole	02/24/2005
AT 13	Deleted	N/A
AT 14	Weigh In Motion Piezo Details	02/24/2005
AT 15	RWIS Site And Foundation Details	02/24/2005
AT 16	RWIS Tower Base And Service Pad Layout	02/24/2005
AT 17	Ground Rod Installation And Tower Grounding	02/24/2005
AT 18	TMS Detection Zone Layout	02/24/2005
BA 3	Deleted	N/A
BA 3A	Cast In Place Constant Slope Barrier	02/24/2005
BA 3B	Precast Concrete Constant Slope Transition Section For Crash Cushion And W-Beam Guardrail	02/24/2005
BA 4B	W-Beam Guardrail Transition	02/24/2005
BA 4C	W-Beam Guardrail Transition Curb Section	02/24/2005
CC 7	Deleted	N/A
CC 7A	Grading And Installation Details Crash Cushion Type F Quad Trend 350	02/24/2005
CC 7B	Reserved For Future Use	N/A
CC 8	Deleted	N/A
CC 8A	Grading And Installation Details Crash Cushion Type G	02/24/2005
CC 8B	Grading And Installation Details For “3R” Projects Crash Cushion Type G	02/24/2005
CC 9A	Grading And Installation Details Crash Cushion Type H	02/24/2005
CC 9B	Grading And Installation Details Crash Cushion Type H (Parabolic Flare)	02/24/2005
DD 4	Geometric Design for Freeways (Roadway)	02/24/2005
FG 3	Swing Gates Type I For Gates Less Than 17’	02/24/2005
ST 5	Painted Median And Auxiliary Lane Details	02/24/2005

Change Two

Revised April 28, 2005

AT 4	Typical Ramp Meter Signal Head Mounting	04/28/2005
CB 1	Curb and Gutter Inlet	04/28/2005
CB 2	Open Curb Inlet	04/28/2005
CB 3	Shallow Catch Basin	04/28/2005
CC 8A	Grading And Installation Details Crash Cushion Type G	04/28/2005
CC 8B	Grading And Installation Details For “3R” Projects Crash Cushion Type G	04/28/2005
CC 9A	Grading And Installation Details Crash Cushion Type H	04/28/2005
CC 9B	Grading And Installation Details Crash Cushion Type H (Parabolic Flare)	04/28/2005
DD 4	Geometric Design for Freeways (Roadway)	04/28/2005
FG 4	Deleted	N/A
FG 4A	Deer Crossing Details	04/28/2005
FG 4B	Deer Ramp Details	04/28/2005
SL 12	Traffic Counting Loop Detector Details	04/28/2005
SL 13	Video Detection Camera Mount	04/28/2005
SN 8	Ground Mounted Timber Sign Post (P1)	04/28/2005
SN 11	Slipbase Ground Mounted Tubular Steel Sign Post (P4)	04/28/2005

Change Three

Revised June 30, 2005

CB 5A	Standard Catch Basin and Cleanout Box	06/30/2005
GW 5A	Pedestrian Access	06/30/2005
GW 5B	Pedestrian Access	06/30/2005
GW 5C	Pedestrian Access	06/30/2005

III. Materials Minimum Sampling and Testing

Follow the requirements of the Current Materials Minimum Sampling and Testing Manual:

Materials Minimum Sampling and Testing Manual reference can be found from the UDOT Web Site at:
http://www.udot.utah.gov/index.php/m=c/tid=645

NOTICE TO CONTRACTORS

Sealed proposals will be received by the Utah Department of Transportation UDOT/DPS Building (4th Floor), 4501 South 2700 West, Salt Lake City, Utah. 84114-8220, until 2 o'clock p.m. Tuesday, November 08, 2005, and at that time the download process of bids from the USERTrust Vault to UDOT will begin, with the public opening of bids scheduled at 2:30 for ITS/ATMS Traffic System Management of PROVO AREA OPTIC AND WAN in UTAH County, the same being identified as Federal Aid Project No: CM-LC49(86).

Federal Regulations:
In conformity with the Federal-Aid Highway Act of 1968, the U.S. Department of Labor has certified the minimum wage rates to be paid on this contract. These rates are made a part of the contract documents. This Department has been advised by the Wage and Hour Division, U.S. Department of Labor, that contractors engaged in highway construction work are required to meet the provisions of the Fair Labor Standards Act of 1938, (52 Stat. 1060). This contract is subject to all appropriate Federal Laws, including Title VI of the Civil Rights Act of 1964.

Project Location: PROVO AREA OPTIC AND WAN

The principal items of work are as follows (for all items of work see attachment):
Fiber Optic Cable
3" ATMS Conduit
Modify Fiber Junction Type 3

The project is to be completed: in 70 Working Days.

Mandatory Pre-bid Conference: October 05, 2005, 10:00 am, Provo City Engineering Department
Downstairs Conference Room
1377 S. 350 E., Provo, Utah

Conference attendance is a requirement for bid submission.

Other Requirements:
All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, http://www.udot.utah.gov/index.php/m=c/tid=319. To bid on UDOT projects, bidders must use UDOT's Electronic Bid System (EBS). The EBS software and EBS training schedules are also available on this website.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's website to register. Unregistered companies may obtain a **CD**, that contains the Specifications and Plans, from the main office, 4501 South 2700 West, Salt Lake City, (801) 965-4346, for a fee of $20.00, plus tax and mail charge, if applicable, none of which will be refunded.

Prequalification of bidders is required. Prior to submitting a bid, the bidder must have on file with the Utah Department of Transportation a completed and approved contractor's application for prequalification. Department processing time is 10 working days from receipt of properly executed documentation.

As required, a contractor's license must be obtained from the Utah Department of Commerce.

Each bidder must submit an electronic bid bond from an approved surety company using UDOT's Electronic Bid System (EBS); or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

If you need an accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4346. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4346.

Dated this 24th day of September, 2005.

UTAH DEPARTMENT OF TRANSPORTATION

Revised Date:

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 11/8/2005
Region: REGION 3
Project Number: CM-LC49(86)
County: UTAH
Project Name: PROVO AREA OPTIC AND WAN
Concept: ITS/ATMS Traffic System Management
Funding: FEDERAL
Bid Items Version#: 1
DBE Goal: 4.00%

#	Item	Description	Quantity	Unit
10 - ROADWAY				
	Description: General Bid Items			
1	012850010	Mobilization	1	lump sum
2	013150010	Public Information Services	1	lump sum
3	015540005	Traffic Control	1	lump sum
50 - SIGNALS				
	Description: Signals			
4	028920104	Video Detection Assemblies	76	each
5	13556001P	CCTV Assembly	22	each
6	16711001*	Traffic Signal Modification 5200 N. & University Ave.	1	lump sum
7	16711002*	Traffic Signal Modification 4800 N. & University Ave.	1	lump sum
8	16711003*	Traffic Signal Modification 4800 N. & Edgewood Dr.	1	lump sum
9	16711004*	Traffic Signal Modification 4800 N. & 300 W.	1	lump sum
10	16711005*	Traffic Signal Modification 4400 N. & University Ave.	1	lump sum
11	16711006*	Traffic Signal Modification 3650 N. & Canyon Rd.	1	lump sum
12	16711007*	Traffic Signal Modification 3700 N. & University Ave.	1	lump sum
13	16711008*	Traffic Signal Modification 3300 N. & University Ave.	1	lump sum
14	16711009*	Traffic Signal Modification 2680 N. & University Ave.	1	lump sum
15	16711010*	Traffic Signal Modification 2230 N. & 200 W.	1	lump sum
16	16711011*	Traffic Signal Modification 2230 N. & 400 W.	1	lump sum
17	16711012*	Traffic Signal Modification 2230 N. & University Pkwy.	1	lump sum
18	16711013*	Traffic Signal Modification 2230 N. & University Ave.	1	lump sum
19	16711014*	Traffic Signal Modification 2230 N. & Canyon Rd.	1	lump sum
20	16711015*	Traffic Signal Modification 2200 N. & 650 E.	1	lump sum
21	16711016*	Traffic Signal Modification Temple View Dr. & 900 E.	1	lump sum
22	16711017*	Traffic Signal Modification University Pkwy. & 900 E.	1	lump sum
23	16711018*	Traffic Signal Modification Birch Ln. & 900 E.	1	lump sum
24	16711019*	Traffic Signal Modification 900 N. & 900 E.	1	lump sum
25	16711020*	Traffic Signal Modification 900 N. & Campus Dr.	1	lump sum
26	16711021*	Traffic Signal Modification 700 N. & 700 E.	1	lump sum
27	16711022*	Traffic Signal Modification 700 N. & 900 E.	1	lump sum
28	16711023*	Traffic Signal Modification 450 N. & 900 E.	1	lump sum
29	16711024*	Traffic Signal Modification Center St. & 900 E.	1	lump sum
30	16711025*	Traffic Signal Modification 300 S. & 900 E.	1	lump sum
31	16711026*	Traffic Signal Modification 300 S. & 700 E.	1	lump sum
32	16711027*	Traffic Signal Modification State St. & 900 E.	1	lump sum
33	16711028*	Traffic Signal Modification University Pkwy. & 450 E.	1	lump sum
34	16711029*	Traffic Signal Modification University Pkwy. & 350 E.	1	lump sum
35	16711030*	Traffic Signal Modification University Pkwy. & Canyon Rd.	1	lump sum
36	16711031*	Traffic Signal Modification 1430 N. & Canyon Rd.	1	lump sum
37	16711032*	Traffic Signal Modification 1230 N. & Canyon Rd.	1	lump sum
38	16711033*	Traffic Signal Modification University Pkwy. & 200 W.	1	lump sum
39	16711034*	Traffic Signal Modification University Pkwy. & University Ave.	1	lump sum

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 11/8/2005 **Region:** REGION 3
Project Number: CM-LC49(86) **County:** UTAH
Project Name: PROVO AREA OPTIC AND WAN
Concept: ITS/ATMS Traffic System Management
Funding: FEDERAL
Bid Items Version#: 1 **DBE Goal:**

#	Item	Description	Quantity	Unit
50 - SIGNALS				
	Description: Signals			
40	16711035*	Traffic Signal Modification 1450 N. & University Ave.	1	lump sum
41	16711036*	Traffic Signal Modification 1230 N. & University Ave.	1	lump sum
42	16711037*	Traffic Signal Modification Canyon Rd. & University Ave.	1	lump sum
43	16711038*	Traffic Signal Modification 960 N. & University Ave.	1	lump sum
44	16711039*	Traffic Signal Modification 800 N. & University Ave.	1	lump sum
45	16711040*	Traffic Signal Modification 700 N. & University Ave.	1	lump sum
46	16711041*	Traffic Signal Modification 500 N. & University Ave.	1	lump sum
47	16711042*	Traffic Signal Modification 200 N. & University Ave.	1	lump sum
48	16711043*	Traffic Signal Modification 100 N. & University Ave.	1	lump sum
49	16711044*	Traffic Signal Modification Center St. & University Ave.	1	lump sum
50	16711045*	Traffic Signal Modification 100 S. & University Ave.	1	lump sum
51	16711046*	Traffic Signal Modification 300 S. & University Ave.	1	lump sum
52	16711047*	Traffic Signal Modification 1230 N. & 300 W.	1	lump sum
53	16711048*	Traffic Signal Modification 1230 N. & 200 W.	1	lump sum
54	16711049*	Traffic Signal Modification 1100 N. & 200 W.	1	lump sum
55	16711050*	Traffic Signal Modification 940 N. & 200 W.	1	lump sum
56	16711051*	Traffic Signal Modification 800 N. & 200 W.	1	lump sum
57	16711052*	Traffic Signal Modification 500 N. & 200 W.	1	lump sum
58	16711053*	Traffic Signal Modification 200 N. & 200 W.	1	lump sum
59	16711054*	Traffic Signal Modification 100 N. & 200 W.	1	lump sum
60	16711055*	Traffic Signal Modification Center St. & 200 W.	1	lump sum
61	16711056*	Traffic Signal Modification Center St. & 300 W.	1	lump sum
62	16711057*	Traffic Signal Modification 100 S. & 200 W.	1	lump sum
63	16711058*	Traffic Signal Modification 100 N. & 100 W.	1	lump sum
64	16711059*	Traffic Signal Modification Center St. & 100 W.	1	lump sum
65	16711060*	Traffic Signal Modification 100 S. & 100 W.	1	lump sum
66	16711061*	Traffic Signal Modification 1850 N. & State St.	1	lump sum
67	16711062*	Traffic Signal Modification 1720 N. & State St.	1	lump sum
68	16711063*	Traffic Signal Modification Grandview Ln. & Columbia Ln.	1	lump sum
69	16711064*	Traffic Signal Modification 940 N. & 500 W.	1	lump sum
70	16711065*	Traffic Signal Modification 1230 N. & 500 W.	1	lump sum
71	16711066*	Traffic Signal Modification Riverside Ave. & State St.	1	lump sum
72	16711067*	Traffic Signal Modification 800 N. & 500 W.	1	lump sum
73	16711068*	Traffic Signal Modification 500 N. & 500 W.	1	lump sum
74	16711069*	Traffic Signal Modification 100 N. & 500 W.	1	lump sum
75	16711070*	Traffic Signal Modification Center St. & 500 W.	1	lump sum
76	16711071*	Traffic Signal Modification Center St. & 900 W.	1	lump sum
77	16711072*	Traffic Signal Modification 300 S. & 500 W.	1	lump sum
78	16711073*	Traffic Signal Modification 300 S. & 200 W.	1	lump sum
79	16711074*	Traffic Signal Modification 920 S. & 500 W.	1	lump sum
80	16711075*	Traffic Signal Modification 920 S. & University Ave.	1	lump sum
81	16711076*	Traffic Signal Modification 1200 S. & University Ave.	1	lump sum
82	16711077*	Traffic Signal Modification Towne Ctr. Dr. & Towne Ctr. Blvd.	1	lump sum

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 11/8/2005 **Region:** REGION 3
Project Number: CM-LC49(86) **County:** UTAH
Project Name: PROVO AREA OPTIC AND WAN
Concept: ITS/ATMS Traffic System Management
Funding: FEDERAL
Bid Items Version#: 1 **DBE Goal:**

#	Item	Description	Quantity	Unit
50 - SIGNALS				
	Description: Signals			
83	16711078*	Traffic Signal Modification East Bay Blvd. & University Ave.	1	lump sum
84	16711079*	Traffic Signal Modification East Bay Blvd. & 180 E.	1	lump sum
85	16711080*	Traffic Signal Modification 1860 S. & University Ave.	1	lump sum
86	16711081*	Traffic Signal Modification 1860 S. & 150 E.	1	lump sum
87	16711082*	Traffic Signal Modification 1860 S. & East Bay Blvd.	1	lump sum
88	16711083*	Traffic Signal Modification 1860 S. & State St.	1	lump sum
89	16711084*	Traffic Signal Modification 820 N. & Geneva Rd.	1	lump sum
90	16711085*	Traffic Signal Modification Center St. & 2050 W.	1	lump sum
91	16711086*	Traffic Signal Modification Center St. & 1600 W.	1	lump sum
92	16711087*	Traffic Signal Modification SR-52 & University Ave.	1	lump sum
70 - ATMS				
	Description: Interconnect			
93	02583000*	Parapet Conduit Repair	1	lump sum
94	13553001*	2" ATMS Conduit	500	foot
95	13553002*	3" ATMS Conduit	12000	foot
96	13554001P	Polymer Concrete Junction Box Type III	16	each
97	13554002P	Polymer Concrete Junction Box Type II	17	each
98	13558001*	Modify Fiber Junction Type 1	13	each
99	13558002*	Modify Fiber Junction Type 2	42	each
100	13558003*	Modify Fiber Junction Type 3	119	each
101	13558004*	Modify Fiber Junction Type 4	11	each
102	13558005*	Modify Fiber Junction Type 5	24	each
103	13558006*	Modify Fiber Junction Type 6	31	each
104	13558007*	Modify Fiber Junction Type 7	4	each
105	13559001*	Remove Interconnect Cable	73000	foot
106	13594012*	Fiber Optic Cable	112000	foot
107	13594014*	Fiber Optic Splice	650	each
108	13596000*	Fiber Optic Pole Mounted Riser	1	each
109	13597000*	ATMS Integration	1	lump sum
110	13598000*	NID Integration	1	lump sum
111	16076001*	Round-about CCTV 3700 N. & 300 W.	1	lump sum
112	16076002*	Round-about CCTV 920 S. & 200 W.	1	lump sum
113	16136000*	NID Cable	14000	foot
114	16136001*	NID Assembly Type 1	12	each
115	16136002*	NID Assembly Type 2	10	each
116	16136003*	NID Assembly Type 3	3	each

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Measurement and Payment
CM-LC49(86)

The Department will measure and pay for each bid item as detailed in this section. Payment is contingent upon acceptance by the Department.

Items are listed by Specification and in tables as follows:

Item #	Bid Item Number	Bid Item Name	Unit of Measurement and Payment
Additional information goes here.			

1	**012850010**	**Mobilization**	**Lump sum**
	Payment	**Amount Paid**	**When Paid**
	First	The lesser of 25% of Mobilization or 2.5% of contract	With first estimate
	Second	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 5% of contract
	Third	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 10% of contract
	Fourth	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 20% of contract
	Final	Amount bid in excess of 10% of contract price.	Project Acceptance-Final
Includes costs to provide Survey, as per Section 01721S and Temporary Environmental Controls, as per Section 01571.			

2	**013150010**	**Public Information Services**	**Lump Sum**
	Payment	**Amount Paid**	**When Paid**
	First	25% of bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate

3	**015540005**	**Traffic Control**	**Lump Sum**
	Payment	**Amount Paid**	**When Paid**
	First	25% of the bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate
Includes costs to provide Traffic Control Maintainer, as per Section 01554: Traffic Control.			

4	028920104	Video Detection Assemblies	Each

1. Includes components to provide a fully functioning Video Detection system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Video camera assembly, including sun shield
    b. Camera mount, including 46” tube
    c. Video detection cable, including pigtail
    d. Video Detection Controller
3. Includes installation of contractor furnished items such as zip ties, mule tape, or other incidental items required to install the assembly according to plans and specifications.
4. Includes incidental equipment , labor and components as required to construct assembly in accordance with the plans and specifications, including but not limited to:
    a. Splicing, wiring, and connections including Video power Cable
    b. Camera placement adjustments
    c. Aiming and focusing
    d. Equipment calibration
    e. Coordination with UDOT and Provo City

5	13556001P	CCTV Assembly	Each

1. Includes components to provide a fully functioning CCTV Assembly as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. CCTV Camera
    b. Wall Mount
    c. Pole Adapter
    d. CCTV Cable
    e. Encoder
3. Includes furnishing and installing any incidental “contractor furnished” items required to install the assembly according to plans and specifications, including but not limited to wiring and connection components from camera to cabinet.
4. Includes incidental equipment , labor and components as required to construct assembly in accordance with the plans and specifications, including but not limited to:
    a. Camera placement adjustments
    b. Aiming and focusing
    c. Equipment calibration
    d. Coordination with UDOT and Provo City

6	16711001*	Traffic Signal Modification 5200 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out Kit, and cables.
    b. Installation of Traffic Signal Items, including Signal Controller and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

7	16711002*	Traffic Signal Modification 4800 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Signal Controller and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

8	16711003*	Traffic Signal Modification 4800 N. & Edgewood Dr.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out Kit, and cables.
    b. Installation of Traffic Signal Cabinet items, including Signal Controller and cables
3. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

9	16711004*	Traffic Signal Modification 4800 N. & 300 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

10	16711005*	Traffic Signal Modification 4400 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

11	16711006*	Traffic Signal Modification 3650 N. & Canyon Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out Kit, and cables.
    c. Underground Service Pedestal
2. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation including rebar
    b. Polymer concrete junction boxes, including ground wire and rod
    c. Power Source cable, including trenching, conduit, conductors, and cable
    d. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    e. Luminaire
    f. Fiber Optic Splice Enclosure
    g. Ground Systems, including wire and rods
3. Includes removal and disposal of cabinet foundation(s)
4. Includes all trenching, backfilling, and restoration of previously existing surfaces
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

12	16711007*	Traffic Signal Modification 3700 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

13	16711008*	Traffic Signal Modification 3300 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

14	16711009*	Traffic Signal Modification 2680 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

15	16711010*	Traffic Signal Modification 2230 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

16	16711011*	Traffic Signal Modification 2230 N. & 400 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extensions, including luminaire arms
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
    b. Cable for street lighting
    c. Luminaires
    d. Concrete cabinet foundation extension including rebar
    e. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

17	16711012*	Traffic Signal Modification 2230 N. & University Pkwy.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

18	16711013*	Traffic Signal Modification 2230 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

19	16711014*	Traffic Signal Modification 2230 N. & Canyon Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

20	16711015*	Traffic Signal Modification 2200 N. & 650 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extensions, including arms
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
    d. Underground Service Pedestal
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation including rebar
    b. Fiber Optic Splice Enclosure
    c. Polymer concrete junction box, including ground wire and rod
    d. Power Source cable, including trenching, conduit and wire
    e. Luminaires
    f. Cable for street lighting
    g. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all trenching, backfilling, and restoration of previously existing surfaces.
5. Includes removal and disposal of existing cabinet foundation.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

21	16711016*	Traffic Signal Modification Temple View Dr. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
    c. Underground Service Pedestal
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation including rebar
    b. Fiber Optic Splice Enclosure
    c. Ground system, including wire and rod
    d. Power Source cable, including trenching, conduit and wire
    e. Cable for street lighting
    f. Polymer Concrete Junction boxes, including ground rod and wire
    g. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all trenching, backfilling, and restoration of previously existing surfaces.
6. Includes removal and disposal of existing cabinet foundation
7. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

22	16711017*	Traffic Signal Modification University Pkwy. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable and Fan-out kit, Ethernet Module, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

23	16711018*	Traffic Signal Modification Birch Ln. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Ethernet Module, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

24	16711019*	Traffic Signal Modification 900 N. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

25	16711020*	Traffic Signal Modification 900 N. & Campus Dr.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

26	16711021*	Traffic Signal Modification 700 N. & 700 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

27	16711022*	Traffic Signal Modification 700 N. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

28	16711023*	Traffic Signal Modification 450 N. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

29	16711024*	Traffic Signal Modification Center St. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

30	16711025*	Traffic Signal Modification 300 S. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extensions, including arms
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Fiber Optic Splice Enclosure
    c. Cable for street lighting
    d. Luminaires
    e. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

31	16711026*	Traffic Signal Modification 300 S. & 700 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable and Fan-out kit, and cables.
    c. Underground Service Pedestal
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation including rebar
    b. Fiber Optic Splice Enclosure
    c. Power Source cable, including trenching, conduit and wire
    d. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    e. Polymer Concrete Junction Box, including ground rod and wire
4. Includes removal and disposal of concrete cabinet foundation(s).
5. Includes all trenching, backfill, and restoration of previously existing surfaces.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

32	16711027*	Traffic Signal Modification State St. & 900 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

33	16711028*	Traffic Signal Modification University Pkwy. & 450 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extension, including arm
    b. Installation of ATMS Communications items, including Terminal Server/Encoder, Fiber Optic Drop Cable with fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Luminaire
    b. Cable for street lighting
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

34	16711029*	Traffic Signal Modification University Pkwy. & 350 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Terminal Server/Encoder, Fiber Optic Drop Cable with fan-out Kit, and cables.
3. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

35	16711030*	Traffic Signal Modification University Pkwy. & Canyon Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Terminal Server/Encoders, Fiber Optic Drop Cable with fan-out Kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Luminaires
    b. Cable for Street Lighting
4. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
5. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

36	16711031*	Traffic Signal Modification 1430 N. & Canyon Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Reinstallation of ATMS Communications items, including Ethernet Switch and cables
    c. New installation of Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

37	16711032*	Traffic Signal Modification 1230 N. & Canyon Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communication Items, including Terminal Server/Encoder, Fiber Optic Drop Cable with fan-out kit, and cables
3. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

38	16711033*	Traffic Signal Modification University Pkwy. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable and Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

39	16711034*	Traffic Signal Modification University Pkwy. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable and Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

40	16711035*	Traffic Signal Modification 1450 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet Module, Fiber Optic Drop Cable and Fan-out kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

41	16711036*	Traffic Signal Modification 1230 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable with Fan-out kit, and cables.
    c. Installation of underground service pedestal
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    b. Concrete cabinet foundation including rebar
    c. Polymer concrete junction box, including ground wire and rod
    d. Ground system, including wire and rod
    e. Power Source cable, including trenching, conduit and wire
    f. Fiber Optic Splice Enclosure
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes removal and disposal of concrete cabinet foundation.
6. Includes all trenching, backfill, and restoration of previously existing surfaces.
7. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

42	16711037*	Traffic Signal Modification Canyon Rd. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

43	16711038*	Traffic Signal Modification 960 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

44	16711039*	Traffic Signal Modification 800 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

45	16711040*	Traffic Signal Modification 700 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

46	16711041*	Traffic Signal Modification 500 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    c. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

47	16711042*	Traffic Signal Modification 200 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

48	16711043*	Traffic Signal Modification 100 N. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

49	16711044*	Traffic Signal Modification Center St. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Fiber Optic Splice Enclosure
    c. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
4. Includes all trenching, backfill, and restoration of previously existing surfaces.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

50	16711045*	Traffic Signal Modification 100 S. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

51	16711046*	Traffic Signal Modification 300 S. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

52	16711047*	Traffic Signal Modification 1230 N. & 300 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

53	16711048*	Traffic Signal Modification 1230 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

54	16711049*	Traffic Signal Modification 1100 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

55	16711050*	Traffic Signal Modification 940 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

56	16711051*	Traffic Signal Modification 800 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

57	16711052*	Traffic Signal Modification 500 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

58	16711053*	Traffic Signal Modification 200 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

59	16711054*	Traffic Signal Modification 100 N. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

60	16711055*	Traffic Signal Modification Center St. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

61	16711056*	Traffic Signal Modification Center St. & 300 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

62	16711057*	Traffic Signal Modification 100 S. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

63	16711058*	Traffic Signal Modification 100 N. & 100 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

64	16711059*	Traffic Signal Modification Center St. & 100 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, CCTV Protocol Translator Card, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

65	16711060*	Traffic Signal Modification 100 S. & 100 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

66	16711061*	Traffic Signal Modification 1850 N. & State St.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

67	16711062*	Traffic Signal Modification 1720 N. & State St..	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

68	16711063*	Traffic Signal Modification Grandview Ln. & Columbia Ln.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extension, including arm
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    c. Fiber Optic Splice Enclosure
    d. Luminaire
    e. Cable for street lighting
4. Includes all labor required to rotate luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all trenching, backfill, and restoration of previously existing surfaces.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

69	16711064*	Traffic Signal Modification 940 N & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

70	16711065*	Traffic Signal Modification 1230 N. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

71	16711066*	Traffic Signal Modification Riverside Ave. & State St.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

72	16711067*	Traffic Signal Modification 800 N. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

73	16711068*	Traffic Signal Modification 500 N. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extension, including arm
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    c. Luminaire
    d. Cable for street lighting
    e. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

74	16711069*	Traffic Signal Modification 100 N. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

75	16711070*	Traffic Signal Modification Center St. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

76	16711071*	Traffic Signal Modification Center St. & 900 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

77	16711072*	Traffic Signal Modification 300 S. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

78	16711073*	Traffic Signal Modification 300 S. & 200 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Ethernet module, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

79	16711074*	Traffic Signal Modification 920 S. & 500 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Signal pole luminaire extension, including arm
    b. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    c. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation extension including rebar
    b. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    c. Fiber Optic Splice Enclosure
    d. Luminaire
    e. Cable for street lighting
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

80	16711075*	Traffic Signal Modification 920 S. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Servers/Encoders, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

81	16711076*	Traffic Signal Modification 1200 S. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

82	16711077*	Traffic Signal Modification Towne Ctr. Dr. & Towne Ctr. Blvd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
    b. Luminaires
    c. Cable for street lighting
4. Includes all labor required to rotate existing luminaire extensions, arms, and luminaires as detailed in plans and specifications.
5. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

83	**16711078***	**Traffic Signal Modification East Bay Blvd. & University Ave.**	**Lump**

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

84	16711079*	Traffic Signal Modification East Bay Blvd. & 180 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Pedestrian System items, including Pedestrian Signal Pole, LED Pedestrian Module, Push Button with Sign, Pedestrian Heads, and Anchor Bolts/Hardware.
    b. Luminaire Extensions, including arms
    c. Installation of Traffic Signal Cabinet items, including Cabinet Assembly, Signal Controller, and cables
    d. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Concrete cabinet foundation including rebar
    b. Polymer concrete junction boxes, including ground wire and rods
    c. Concrete pedestrian signal pole foundation, including rebar
    d. Conduit, locator wire, warning tape, and mule tape between junction box and cabinet.
    e. 7 Conductor Number 14 Cable for Pedestrian Circuit
    f. Power Source cable, including trenching, conduit and wire
    g. Luminaires
    h. Cable for street lighting
    i. Fiber Optic Splice Enclosure
4. Includes all trenching, backfill, and restoration of previously existing surfaces.
5. Includes removal and disposal of concrete cabinet foundation.
6. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

85	16711080*	Traffic Signal Modification 1860 S. & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switches, Terminal Servers/Encoders, Fiber Optic Drop Cables with Fan-out kits, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

86	16711081*	Traffic Signal Modification 1860 S. & 150 E.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
    b. Luminaires
    c. Cable for street lighting
4. Includes all labor required to move existing video detection assemblies to mast arm as detailed in plans and specifications.
5. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

87	16711082*	Traffic Signal Modification 1860 S. & East Bay Blvd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

88	16711083*	Traffic Signal Modification 1860 S. & State St.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation Signal Controller and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    c. Underground Service Pedestal
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

89	16711084*	Traffic Signal Modification 820 N. & Geneva Rd.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables.
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

90	16711085*	Traffic Signal Modification Center St. & 2050 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of Traffic Signal Cabinet items, Signal Controller, and cables
    b. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
3. Includes the installation of Contractor Furnished Materials, including but not limited to:
    a. Fiber Optic Splice Enclosure
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

91	16711086*	Traffic Signal Modification Center St. & 1600 W.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switch, Terminal Server/Encoder, Fiber Optic Drop Cable with Fan-out kit, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

92	16711089*	Traffic Signal Modification SR-52 & University Ave.	Lump

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. Installation of ATMS Communications items, including Ethernet Switches, Terminal Servers/Encoders, Fiber Optic Drop Cables with Fan-out kits, and cables.
    b. Installation of Signal Controller and cables
3. Includes installation of Contractor Furnished Materials, including but not limited to Fiber Optic Splice Enclosure.
4. Includes all incidental labor and components as required to construct a functional system in accordance with the plans and specifications. This may include, but is not limited to:
    a. salvage and/or re-use of equipment, including removal and transport of items to Provo City or UDOT designated locations
    b. field adjustments
    c. equipment calibration
    d. cabling, jacks, converters, wiring, or other incidentals necessary for functional system
    e. coordination with UDOT and Provo City
    f. removal and disposal of excess materials not designated by Engineer for salvage or re-use

93	02583000*	Parapet Conduit Repair	Feet
Includes all necessary items to perform and complete Parapet Conduit repair as per plans and specifications.			

94	13553001*	2” ATMS Conduit	Feet
1. Includes components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished items required to install the assembly according to plans and specifications including, but not limited to conduit, locator wire, warning tape, conduit bends, sweeps, connections and splices. 3. Includes incidental equipment, labor and components as required to install assembly in accordance with the plans and specifications, including but not limited to excavation, trenching, backfill, flowable fill, compaction, asphalt, tying new conduit to existing boxes, and restoration of previously existing surface in accordance with plans and specifications. 4. Payment will not be made for improperly restored trenches as determined by the Engineer. 5. Excludes fiber optic cable and splices.			

95	13553002*	3” ATMS Conduit	Feet
1. Includes components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished items required to install the assembly according to plans and specifications including, but not limited to conduit, locator wire, warning tape, conduit bends, sweeps, connections and splices. 3. Includes incidental equipment, labor and components as required to install assembly in accordance with the plans and specifications, including but not limited to excavation, trenching, backfill, flowable fill, compaction, asphalt, tying new conduit to existing boxes, and restoration of previously existing surface in accordance with plans and specifications. 4. Payment will not be made for improperly restored trenches as determined by the Engineer. 5. Excludes fiber optic cable and splices.			

96	13554001P	Polymer Concrete Junction Box Type III	Each
Includes materials and installation of box, lid, and all associated work items and components.			

97	13554002P	Polymer Concrete Junction Box Type II	Each
Includes materials and installation of box, lid, and all associated work items and components.			

98	13558001*	Modify Fiber Junction Type 1	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to polymer concrete junction box, factory sweeps, conduit necessary to connect sweeps to junction box, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to remove existing junction box and install new junction box and complete work at this location in accordance with the plans and specifications, including but not limited to excavation of existing box, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, saw cutting, etc., backfill, compaction, asphalt, and restoration of previously existing surface in accordance with plans and specifications.			

99	13558002*	Modify Fiber Junction Type 2	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to conduit sleeve, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to remove existing junction box and complete work at this location in accordance with the plans and specifications, including but not limited to excavation of existing box, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, saw cutting, etc., backfill, compaction, asphalt, and restoration of previously existing surface in accordance with plans and specifications.			

100	13558003*	Modify Fiber Junction Type 3	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to polymer concrete junction box, conduit necessary to connect existing conduit to junction box, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to remove existing junction box and install new junction box and complete work at this location in accordance with the plans and specifications, including but not limited to excavation of existing box, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, saw cutting, etc., backfill, compaction, concrete, and restoration of previously existing surface in accordance with plans and specifications.			

101	13558004*	Modify Fiber Junction Type 4	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to polymer concrete junction box, conduit necessary to connect existing conduit to junction box, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to complete work at this location in accordance with the plans and specifications, including but not limited to excavation, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, etc., backfill, compaction, concrete, and restoration of previously existing surface in accordance with plans and specifications.			

102	13558005*	Modify Fiber Junction Type 5	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to conduit, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to bypass existing junction box and complete work at this location in accordance with the plans and specifications, including but not limited to excavation, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, etc., backfill, compaction, asphalt, and restoration of previously existing surface in accordance with plans and specifications.			

103	13558006*	Modify Fiber Junction Type 6	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to polymer concrete junction box, conduit necessary to connect existing conduit to new and existing junction box, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to complete work at this location in accordance with the plans and specifications, including but not limited to excavation, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, etc., backfill, compaction, concrete, and restoration of previously existing surface in accordance with plans and specifications.			

104	13558007*	Modify Fiber Junction Type 7	Each
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials as detailed on the plans and specifications, including but not limited to conduit, mule tape, locator wire, and warning tape. 3. Includes incidental equipment, labor, and components as required to connect to and modify existing junction box and complete work at this location in accordance with the plans and specifications, including but not limited to excavation, removal, transport, and disposal of excess materials, disconnecting of existing cables, conduit, etc., backfill, compaction, concrete, asphalt, and restoration of previously existing surface in accordance with plans and specifications.			

105	13559001*	Remove Interconnect Cable	Feet
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes all measures needed to provide temporary or permanent protection to existing cable ends. 3. Includes incidental equipment, labor, and components as required to remove interconnect cable in accordance with the plans and specifications, including but not limited to temporary backfill of areas to receive further construction, excavation, cutting, removal, and disposal of interconnect cable, backfill, compaction and restoration of previously existing surface. 4. Includes incidental equipment, labor, and components as required to remove and salvage interconnect fiber optic cable in accordance with plans and specifications, including but not limited to cutting, removal, protection from damage, coordination with Provo City, and delivery of cable to Provo City.			

106	13594012*	Fiber Optic Cable	Feet
1. Includes all components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of contractor furnished materials, including but not limited to fiber optic cable and mule tape. 3. Includes placement of locator wire in existing conduits where fiber optic cable is installed. 4. Includes incidental equipment, labor, and components as required to install fiber optic cable in accordance with the plans and specifications. 5. Excludes ATMS conduit and splices. 6. Measurement includes cable utilized as well as slack placed in boxes in accordance with plan details. 7. Payment will be made after cable is tested and found to be functioning properly as determined by Engineer.			

107	13594014*	Fiber Optic Splice	Each
1. Includes all components to provide a fully functional splice as shown on the plans and detailed in the specifications. 2. Includes equipment and labor to splice cable as detailed. 3. Measurement to be done in field by each 4. Payment will be made after cable is tested and found to be functioning properly as determined by Engineer.			

108	13596000*	Fiber Optic Pole Mounted Riser	Each
1. Includes components to provide a fully functioning system as detailed on the plans and specifications. 2. Includes installation of Contractor Furnished items required to install the assembly according to plans and specifications including, but not limited to rigid conduit, pvc conduit, standoffs, and corrosion protection. 3. Includes incidental equipment, labor and components as required to install assembly between splice and traffic signal cabinet in accordance with the plans and specifications. 4. Excludes junction box			

109	13597000*	ATMS Integration	Lump sum
	1. Includes all necessary materials and labor to perform complete NID Integration as per specification.		
	Payment	**Amount Paid**	**When Paid**
	First	20% of contract amount	With estimate following completion of 50% of contract
	Second	10% of contract amount	With estimate following completion of 75% of contract
	Third	10% of contract amount	With estimate following completion of 90% of contract
	Fourth	20% of contract amount	With estimate following completion of 95% of contract
	Final	Amount bid in excess of 10% of contract price.	Project Acceptance-Final

110	13598000**	NID Integration	Lump sum
	1. Includes all necessary materials and labor to perform complete NID Integration as per specification.		
	Payment	**Amount Paid**	**When Paid**
	First	20% of contract amount	With estimate following completion of 50% of contract
	Second	10% of contract amount	With estimate following completion of 75% of contract
	Third	10% of contract amount	With estimate following completion of 90% of contract
	Fourth	20% of contract amount	With estimate following completion of 95% of contract
	Final	Amount bid in excess of 10% of contract price.	Project Acceptance-Final

111	16076001*	Round-about CCTV 3700 N. & 300 W.	Lump Sum

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished materials including but not limited to the following items:
    a. CCTV Pole (Highway Luminaire Pole w/ Slip Base)
    b. CCTV Camera Assembly
    c. Mounting equipment and associated hardware
    d. ATMS Cabinet and components
    e. Underground Service Pedestal
3. Includes the installation of Contractor Furnished materials including but not limited to the following items:
    a. Wiring and conduit from CCTV Camera Assembly to Junction Box
    b. Junction boxes as detailed in plans and specifications
    c. Conduit and wiring for power source delivery to the system
    d. Concrete and rebar associated with the installation of the CCTV Pole, ATMS cabinet foundation, and underground service pedestal foundation.
4. Includes incidental equipment, labor, and components required to install a complete and operational Round-About CCTV system. This includes, but is not limited to:
    a. Labor and materials for the installation of the ATMS cabinet foundation, CCTV Pole foundation, and underground service pedestal foundation, including excavation and formwork.
    b. Labor for installation of ATMS cabinet, underground service pedestal, CCTV Pole, CCTV Camera Assembly, and associated hardware and components
    c. Labor associated with removal, transport, and disposal of excess materials.
    d. Restoration of previously existing surface in accordance with plans and specifications.
5. Includes landscape and irrigation maintenance restoration.
6. Excludes ATMS conduit from Junction Box to cabinet.
7. Payment will be made after system is tested and accepted.

112	16076002*	Round-about CCTV 920 S. & 200 W.	Lump Sum

1. Includes all components to provide a fully functioning system as detailed on the plans and specifications.
2. Includes the installation of State Furnished materials including but not limited to the following items:
    a. CCTV Pole (Highway Luminaire Pole w/ Slip Base)
    b. CCTV Camera Assembly
    c. Mounting equipment and associated hardware
    d. ATMS Cabinet and components
    e. Underground Service Pedestal
3. Includes the installation of Contractor Furnished materials including but not limited to the following items:
    a. Wiring and conduit from CCTV Camera Assembly to Junction Box
    b. Junction boxes as detailed in plans and specifications
    c. Conduit and wiring for power source delivery to the system
    d. Concrete and rebar associated with the installation of the CCTV Pole, ATMS cabinet foundation, and underground service pedestal foundation.
4. Includes incidental equipment, labor, and components required to install a complete and operational Round-About CCTV system. This includes, but is not limited to:
    a. Labor and materials for the installation of the ATMS cabinet foundation, CCTV Pole foundation, and underground service pedestal foundation, including excavation and formwork.
    b. Labor for installation of ATMS cabinet, underground service pedestal, CCTV Pole, CCTV Camera Assembly, and associated hardware and components
    c. Labor associated with removal, transport, and disposal of excess materials.
    d. Restoration of previously existing surface in accordance with plans and specifications.
5. Includes landscape and irrigation maintenance restoration
6. Excludes ATMS conduit from Junction Box to cabinet.
7. Payment will be made after system is tested and accepted.

113	16136000*	NID Cable	Feet

1. Includes installing state furnished cable and pigtails through previously installed junction boxes and conduit.
2. Includes the installation of Contractor Furnished materials including but not limited to connections, and mule tape
3. Includes incidental equipment, labor, and components required to install the cable
4. Excludes conduit
5. Payment will be made after cable is tested and found to be functioning properly.
6. Measurement includes cable utilized as well as slack placed in boxes in accordance with plan details.

114	16136001*	NID Assembly Type 1	Each

1. Includes components to provide a fully functioning NID Assembly on a new pole as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. NID pole as shown in the plans and details
    b. NID sensor, mount, lightening arrestor, surge protector and splice box, contact closure cards and adapter, and converter.
    c. Installation of NID equipment in traffic signal cabinet.
    d. Connection of NID sensor assembly to power supply.
3. Includes furnishing and installing any incidental “contractor furnished” items required to install the assembly according to plans and specifications including but not limited to:
    a. Rain tight cap for NID pole
    b. Neoprene grommet/watertight cable clamp
    c. Polymer Concrete Junction Box Type II including ground wire and rod (where required, as detailed on the plans)
    d. Conduit between junction box and NID pole as shown in plans and details
    e. Concrete and rebar for NID pole foundation
4. Includes labor as required to construct assembly in accordance with the plans and specifications, including but not limited to:
    a. Pulling pigtail from NID assembly to junction box
    b. Equipment calibration
    c. Coordination with UDOT and Provo City
    d. Excavation, backfill, compaction, and removal and disposal of excess material
    e. Site restoration to repair impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer
5. Includes incidental items or activities required to complete work at this location and covers items not specifically called out in plans, spreadsheets, or specifications, including but not limited to replacement or repair of impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer.
6. Excludes the following items:
    a. ATMS conduit and NID cable between junction box and traffic signal cabinet
7. Payment will be made after cable is tested and found to be functioning properly

115	16136002*	NID Assembly Type 2	Each

1. Includes components to provide a fully functioning NID Assembly on an existing hollow pole as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. NID equipment and assembly, pigtail, wiring and connection components from NID assembly to junction box
    b. NID sensor, mount, surge protector and splice box, contact closure cards and adapter, and converter.
    c. Installation of NID equipment in traffic signal cabinet.
    d. Connection of NID sensor assembly to power supply.
3. Includes furnishing and installing any incidental “contractor furnished” items required to install the assembly according to plans and specifications including but not limited to:
    a. Neoprene grommet/watertight cable clamp
    b. Conduit between junction box and NID pole as shown in plans and details
4. Includes labor as required to construct assembly in accordance with the plans and specifications, including but not limited to:
    a. Pulling Wire from NID assembly to junction box
    b. Equipment calibration
    c. Maintenance of existing pole and repair of any damage
    d. Coordination with UDOT and Provo City
    e. Excavation, backfill, compaction, and removal and disposal of excess material
    f. Site restoration to repair impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer
5. Includes incidental items or activities required to complete work at this location and covers items not specifically called out in plans, spreadsheets, or specifications, including but not limited to replacement or repair of impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer.
6. Excludes the following items:
    a. ATMS conduit and NID cable between junction box and traffic signal cabinet
    b. Polymer Concrete Junction Box Type II including ground wire and rod (where required, as detailed on the plans)
7. Payment will be made after cable is tested and found to be functioning properly

116	16136003*	NID Assembly Type 3	Each

1. Includes components to provide a fully functioning NID Assembly on an existing solid pole as detailed on the plans and specifications.
2. Includes the installation of State Furnished Materials, including but not limited to:
    a. NID equipment and assembly, mounting equipment, detector cables, wiring and connection components from NID assembly to junction box
    b. NID sensor, mount, detector cables, surge protector and splice box, contact closure cards and adapter, and converter.
    c. Installation of NID equipment in traffic signal cabinet.
    d. Connection of NID sensor assembly to power supply.
3. Includes furnishing and installing any incidental “contractor furnished” items required to install the assembly according to plans and specifications including but not limited to:
    a. Neoprene grommet/watertight cable clamp
    b. Conduit on pole from the NID assembly to where it meets the underground conduit as specified in the plans and details including mounting equipment and fittings.
    c. Conduit between junction box and NID pole as shown in plans and details
4. Includes labor as required to construct assembly in accordance with the plans and specifications, including but not limited to:
    a. Pulling pigtail from NID assembly to junction box
    b. Equipment calibration
    c. Maintenance of existing pole and repair of any damage
    d. Coordination with UDOT and Provo City
    e. Excavation, backfill, compaction, and removal and disposal of excess material
    f. Site restoration to repair impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer
5. Includes incidental items or activities required to complete work at this location and covers items not specifically called out in plans, spreadsheets, or specifications, including but not limited to replacement or repair of impacted concrete, asphalt, landscaping, irrigation systems, signs, or any other items deemed necessary at the direction of the Engineer.
6. Excludes the following items:
    a. ATMS conduit and NID cable between junction box and traffic signal cabinet
    b. Polymer Concrete Junction Box Type II including ground wire and rod (where required, as detailed on the plans)

VII. Use of Minority or Women Owned Banks

SPECIAL PROVISION

In the spirit of Federal Department of Transportation regulations the Utah Department of Transportation encourages all contractors and suppliers to thoroughly investigate the services offered by banks controlled and/or owned by minorities or women and to utilize their services as deemed feasible.

VIII. Bid Conditions
DISADVANTAGED BUSINESS ENTERPRISE (DBE)

POLICY

"Policy Statement"

It is the policy of the DEPARTMENT to take all necessary and reasonable actions to ensure that DBEs as defined herein shall have equal opportunity to participate in the performance of contracts financed in whole or in part with US Department of Transportation (DOT) funds under this agreement as modified herein.

"Objectives"

The objectives of this policy are to:

1. Ensure nondiscrimination in the award and administration of DOT assisted contracts;

2. Create a level playing field on which DBEs can compete fairly for DOT assisted contracts;

3. Ensure that the DBE program is narrowly tailored in accordance with applicable law;

4. Ensure that only firms that fully meet *49 CFR 26* eligibility standards are permitted to participate as DBEs;

5. Remove barriers to the participation of DBEs in Federal aid contracts;

6. Assist the development of firms that can compete successfully in the marketplace outside the DBE program; and

7. Provide appropriate flexibility in establishing and providing opportunities for DBEs.

"Responsibilities"

Implementation of the DBE Program is accorded the same priority as compliance with all other legal obligations incurred by the DEPARTMENT in financial assistance agreements with DOT.

1. The Civil Rights Manager shall be the DBE liaison officer, who shall have direct, independent access to the Executive Director concerning DBE program matters. The Civil Rights manager shall be responsible for implementing all aspects of the DBE program. Adequate staff will be assigned to administer the DBE program.

2. The ENGINEER is responsible for supervision of the DBE participation covered by the Contract.

DBE BID AND PERFORMANCE CONDITIONS

"Obligations"

The contractor, subcontractor, service provider, or supplier at any lower tier shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the DEPARTMENT deems appropriate.

"Assurances"

Each contract between the DEPARTMENT and the Contractor and each subcontract at any lower tier must include the following assurance:

> The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the DEPARTMENT deems appropriate.

A. CONTRACT GOAL

1. The DEPARTMENT has determined that one or more can reasonably be expected to compete for the work contained in the proposal for this project. It is, therefore, the goal of the DEPARTMENT that DBE firms shall have an affirmative action opportunity to contract for the following percentage of work under this contract:

   a. If the indicated DBE percent of the *CONTRACT DBE GOAL* is greater than 0.0 percent, complete Part A of the DBE BID ASSURANCE. Refer to Bidding Requirements, Section D, Subsection 1,a, of this Special Provision. (The commitment dollar amount up to the amount of the assigned goal is Race Conscious DBE participation. Any commitment dollar amount in excess of the assigned goal is Race Neutral Participation.)

b. If the indicated DBE percent of the *CONTRACT DBE GOAL* is 0.0 percent complete Part B of the DBE BID ASSURANCE. Refer to Bidding Requirements, Section D, Subsection 1,b, of this Special Provision. (Any commitment to a DBE is Race Neutral Participation.)

CONTRACT DBE GOAL: 4.0 Percent

2. GOALS

a. GOAL FOR BID EVALUATION

The above entered DBE percentage is a goal for bid evaluation to determine responsiveness of the proposal as it relates to this specification. Percentages for bidding purposes shall be calculated using dollar values and quantities as shown in proposals received for this project. Bidders shall compute the percentage of their DBE commitment by dividing the dollar amount of subcontract work that is being committed to certified DBE firms by the total dollar amount of the proposal. This will be the percentage of their DBE commitment to be used by the Electronic Bidding System (EBS) software.

b. RACE CONSCIOUS GOAL

DBE participation on projects that are assigned a Goal for Bid Evaluation that is greater than 0.0 percent is *race conscious* and the DBE commitment becomes a contract specification upon award. The Bidder must submit with its Bid Proposal a *DBE Commitment,* prepared within the EBS software, that indicates:

(1) Name of DBE firm
(2) Work items to be performed
(3) Total dollar amount of commitment

If the DBE commitment does not meet or exceed the assigned goal, the Bidder must submit with the Bid Proposal documentation of good faith efforts.

c. RACE NEUTRAL GOAL

DBE participation on projects that are assigned 0.0 percent Goal for Bid Evaluation is *race neutral* and does not become a contract specification upon award. The Bidder must take equal opportunity action to allow DBEs to compete for and perform on subcontracts. Only work classifications that the Bidder will subcontract need to be considered in evaluating equal opportunity action in the bid preparation. Contacts that have been made with DBE firms regarding potential work to be subcontracted and the results of such contacts are to be submitted with the EBS prepared Bid Proposal in *Race Neutral DBE Documentation* which contains:

(1) The work classifications that will be subcontracted.
(2) DBE firms contacted.
(3) Result of contact
(4) Name of anticipated DBE subcontractor(s)
(5) Anticipated work items to be performed by DBEs.
(6) Anticipated dollar amount of subcontract(s).

NOTE: In the EBS (Electronic Bidding System):
Use the Quote Comparison to document item (1).
Use the DBE Contact Log to document items (2) and (3).
Use the DBE Commitment to document items (4), (5), and (6).

The *Race Neutral DBE Documentation* is required to document equal opportunity action and to assist UDOT with DBE reporting and DBE goal setting. Use the EBS functions in above NOTE as the Race Neutral DBE Documentation.

d. GOAL FOR CONTRACT PERFORMANCE

The Bidder's *DBE Commitment* becomes an attachment to the Bid Proposal and is a condition of award, and thereby becomes a contract specification. Upon award, this Race Conscious DBE Commitment also becomes the minimum goal for contract performance.

Commitments to DBEs that exceed the Goal for Bid Evaluation will be considered as both race conscious and race neutral. The dollar amount of the Goal for Bid Evaluation will be considered to be race conscious participation. Any dollar amounts in excess of the Goal for Bid Evaluation will be considered as race neutral participation.

It is the intent of this Special Provision that the DBE Firm(s) listed for *race conscious* participation, as a minimum level of participation, will perform to the extent indicated in the Bidder's DBE Commitment. The minimum level of DBE participation includes:

(1) Indicated DBE firm(s),
(2) Indicated work item(s) (bid items),
(3) Indicated total dollar amounts.

Listed bid items shall be considered to be committed in their entirety unless Bidders designate otherwise in their DBE Commitment. If the DBE will perform only a part of the bid item, i.e., haul only, the Bidder must indicate what part the DBE will perform (Partial Performance). If the DBE will perform only a part of the quantity of the bid item, the Bidder must indicate the estimated quantity of the work to be performed by the DBE (Partial Quantity).

Substitutions of DBE subcontractor(s), work item(s), or decreases of total dollar amount(s) as indicated in the Bidder's DBE Commitment will not be allowed without prior submission of written justification to the ENGINEER and approval of the ENGINEER and the Civil Rights Manager.

After award of a contract, substitutions will not be allowed without prior submission of a written “hold harmless” statement from the DBE.

Any change by the Contractor in the DBE Commitment requires that the change is approved by a Change Order.

Substitution of race neutral participation in excess of the Goal for Bid Evaluation requires equal opportunity efforts to substitute with other DBE participation.

DEPARTMENT generated decreases due to quantity changes in individual bid items do not require prior approval of the Civil Rights Manager—but must be fully justified by the ENGINEER at the conclusion of the project in the Explanation of Overruns and Under-runs Statement. The ENGINEER'S justification shall show the total estimated quantity, the final pay quantity as shown on the final estimate invoice, the quantity of the under-run, and the percent of under-run of the individual item. The explanation for the under-run shall include the reasons for the under-run and shall include as much detail as possible.

e. GOAL FOR FINAL COMPLIANCE

Percentages for final compliance shall be based on actual payments to DBEs. Over-runs and under-runs in individual contact items may require adjustments in the predetermined DBE percentage for a project if those items were not related to DBE performance. "The predetermined percentage for a project" refers to the percentage of the Contractor's DBE Commitment that becomes a contract specification upon award.

B. DEFINITIONS

For the purpose of this Special Provision, the following terms are defined:

1. Contract means a legally binding relationship obligating a seller to furnish supplies or services including but not limited to, construction and professional services) and the buyer to pay for them.
2. Contractor means one who participates, through a contract or subcontract (at any tier).

3. Disadvantaged Business Enterprise or DBE means a for profit small business concern.

   a. That has been certified to DBE status by the UUCP.

   b. That is at least 51 per cent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 per cent of the stock of which is owned by one or more such individuals; and

   c. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

   d. Whose size is limited to average annual gross receipts of $17,425,000 over the previous three fiscal years. The Secretary of Transportation may adjust this amount from time to time for inflation.

OR

Whose size is limited to the current SBA Business size standard(s) found in 23 CFR part 121 appropriate to the type(s) of work the firm seeks to perform in DOT-assisted contracts.

4. DBE Goals mean:

   a. UDOT's annual overall goal on DOT-assisted projects for Federal fiscal year

   b. 2005 is 8.9 percent. 3.9 percent of the overall goal is a race neutral goal and reflects the level of DBE participation that would be expected absent the effects of discrimination. There is an implied DBE goal on projects with no goals (0.0 percent) that have subcontracting opportunities. The implied goal is the percent achievable by equal opportunity efforts.

   c. 5.0 percent of the goal is a race conscious goal and reflects the level of DBE participation that will be achieved in response to assigned DBE goals.

5. DBE Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for profit business enterprise, for which the parties combine their property, capital, efforts, skills, and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture to a degree commensurate with its ownership interest.

   The DEPARTMENT's Civil Rights Office prior to bid opening must approve a DBE joint venture in order to be utilized for the satisfaction of contract DBE goals. A DBE Joint Venture application must be submitted allowing ample lead-time for the Civil Rights Office to review, evaluate, and verify information provided for in the application. An interview of the applicant may be necessary at the discretion of the DEPARTMENT prior to approval of the application. If an interview is deemed necessary it will be scheduled at the convenience of all parties.

6. Equal Opportunity Action requires individuals to be considered on the basis of individual capacities and not on the basis of any characteristics generally attributed to the group.

   If a bidder requests or accepts bids for subcontract work, the bidder will request and accept bids from DBEs in the work classifications that potentially will be subcontracted.

7. Good Faith Efforts means efforts to achieve a DBE goal or other requirements of this part that by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirements.

8. Lack of Financial Fitness is a performance-based definition based solely on failure to pay promptly. There is no reference to financial status or financial capability.

9. Prompt Payment means payment made no later than ten (10) work days after receipt of payment by the Contractor or Subcontractor, Service Provider or Supplier at any lower tier.

10. Race Conscious measure or program is focused specifically on assisting only DBEs, including women-owned DBEs. UDOT must establish contract goals to meet any portion of its overall DBE goal that it does not project being able to meet using race neutral means. To ensure that the DBE program continues to be narrowly tailored to overcome the effects of discrimination, UDOT must adjust the use of contract goals as follows:

    a. If during the course of any year it is determined that the overall goal will be exceeded, UDOT will reduce or eliminate the use contract goals to the extent necessary to ensure that the use of contract goals does not result in exceeding the overall goal.

    b. If it is determined that UDOT will fall short of its overall goal, then appropriate modifications in the use of race neutral and/or race conscious measures will be made to allow UDOT to meet the overall goal.

11. Race Neutral measure or program is one that is, or can be, used to assist all small businesses. UDOT must meet the maximum feasible portion if its overall DBE goal by using race -neutral means of facilitating DBE participation. Race neutral DBE participation includes:

    a. Any time a DBE wins a prime contract through customary competitive procurement procedures,

    b. Is awarded a subcontract on a prime contract that does not carry a DBE goal,

    c. Is awarded a subcontract from a prime contractor that did not consider its DBE status in making the award even if there is a DBE goal.
    For the purposes of this part, race-neutral includes gender-neutrality.

12. Regular Employee is a person who:

    a. Would be working for the DBE firm on any other subcontract with any other contractor.

    b. Is a permanent employee of the DBE firm

       Or

       Has been recruited through the traditional recruitment and/or employment centers

    c. Has not recently been employed by the prime contractor on the present project, another subcontractor on the present project, or the renter-lesser of equipment being used on the present project.

    d. Is not a member of a construction crew that regularly works for a non-DBE.

    e. Is not a licensed contractor who is at the time "unemployed" or "between jobs."

13. Regular Equipment is owned or leased and operated on a long term agreement and not on an *ad hoc* or contract by contract agreement.

    a. The equipment would be used by the DBE firm on any other subcontract with any other contractor.
    b. The equipment would be owned by the DBE firm.

    Or

       The equipment would be leased/rented from traditional equipment lease/rental sources.

    c. The DBE firm would have a rental/lease agreement for any rented or leased equipment.

    d. The equipment cannot belong to:

       (1.) Prime Contractor
       (2.) Another subcontractor on the present project.
       (3.) Supplier of materials being installed by the DBE firm.

    e. The equipment cannot come from another contractor fully operated.

14. Reasonable Bid

This is a bid the DEPARTMENT would accept if it were the only bid submitted. Generally, this is a bid within 10 percent of the Engineer's Estimate.

15. Responsible Bidder

A responsible bidder has the apparent ability and capacity to perform the contract requirements.

In addition to normal prequalification, a responsible bidder is defined as one who has signed (manually or electronically) and submitted with the bid the DBE Bid Conditions Assurance of good faith effort included as Part I of this Special Provision certifying the intention to meet the DBE goal of a proposed contract or to continue good faith effort to do so. These goals may be met by subcontracting or leasing contracts with a DBE or purchasing material from a DBE insofar as the work or material becomes a part of a proposed contract.

16 Responsive Bidder

a. A responsive bidder is a bidder who unequivocally offers to provide services or supplies in conformity with the material terms of the solicitation. In addition to normal prequalification and other bidding requirements, a responsive bidder in relationship to this Special Provision is defined as one who submits evidence of proposed subcontract performance with certified DBE firms to achieve the required dollar amount necessary to achieve the percentage goal.

b. Bidders may be considered as presumptively responsive if they have failed to satisfy the advertised DBE goal set for the proposed contract but have certified in their bid that good faith efforts have been expended to meet the goal and that they will continue during the performance of the contract to locate, solicit, and involve DBE firms in contract performance. Documentation of the bidder's good faith efforts must be included with the bid package of the DEPARTMENT's review and assessment. Failure to do so shall render the bid non-responsive. The DEPARTMENT will reject the bid.

17. Satisfactory Completion of a subcontract occurs when:

a. The subcontractor has satisfactorily completed in all respects the work under the Contract.

b. The Contractor and the subcontractor have notified the ENGINEER in writing that the work of the subcontractor has been completed.

c. The Engineer will be given a reasonable length of time to check quantities if necessary. Checking quantities does not guarantee the absolute correctness of quantities.

d. The Contractor and the subcontractor have satisfactorily executed and delivered to the ENGINEER all documents, certificates and proofs of compliance required by the Contract. The satisfactory execution and delivery of these documents, certificates and proofs of compliance to the ENGINEER is a material requirement of the contract.

e. The ENGINEER accepts in writing the work of the subcontract.

f. Satisfactory Completion refers only to payment of retainage and accrued interest. A determination of Satisfactory Completion and payment in full for work performed does not relieve the contractor nor the subcontractor from any contractual obligation.

18. Satisfactory Performance means work performed and materials furnished in conformity with the plans and specifications.

19. Service Provider means a broker or a middle man. A business person who buys, sells or performs a service for another in exchange for a mark up or commission.

20. Socially and Economically Disadvantaged Individuals means any individual who is a citizen (or lawful admitted permanent resident) of the United States and who is:

a. Any individual who the DEPARTMENT finds to be a socially and economically disadvantaged individual on a case-by-case basis.

b. Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(1) “Black Americans,” which includes persons having origins in any of the black racial groups of Africa;

(2) “Hispanic Americans,” which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American or other Spanish or Portuguese culture or origin, regardless of race;

(3) “Native Americans,” which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(4) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S.Trust Territories of the Pacific Islands, (Republic of Palau), the Commonwealth of the Northern Mariana Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(5) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka.

(6) Women.

(7) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

21. Subcontractor

A subcontracting arrangement is generally considered to exist when a person or firm assumes an obligation to perform a part of the contract work and the following conditions are present.

a. The person or firm performing the work is particularly experienced and equipped for such work.

b. Compensation is related to the amount of work accomplished rather than being on an hourly basis.

c. Choice of work methods, except as restricted by the specifications, and the furnishing and controlling of labor and equipment are exercised by the subcontractor with only general supervision being executed by the prime contractor.

d. Personnel involved in the operation are under the direct supervision of the subcontractor and are included on the subcontractor's payroll.

All conditions involved shall be considered and no one condition alone will normally determine whether a subcontract actually exists. In all cases, a DBE subcontractor must be an independent organization, and the ownership and control by the socially and economically disadvantaged individual(s) must be real and continuing. The prime contractor, a subcontractor, or a supplier shall not be responsible for the various operating and management activities of a DBE firm.

22. Supplier

Provides or furnishes materials, goods or services that may be incorporated into the project. The supply transaction is to be documented by an appropriate purchase agreement that includes the required provisions for Federal-aid construction projects.

23. UUCP The Utah Unified Certification Program (UUCP) provides "one-stop shopping" to applicants for DBE certification, such that an applicant is required to apply only once for a DBE certification that is honored by all recipients of Federal-aid Funds in the State of Utah.

C. DETERMINATION OF DBE CONTRACTOR'S ELIGIBILITY BY UUCP

1. Any Contractor may apply to the UUCP for status as a DBE. Applications shall be made on forms provided by the UUCP entitled "UNIFORM CERTIFICATION APPLICATION" or "Information for Determining DBE Joint Venture Eligibility," Form No. R-817. Application need not be made in connection with a particular bid. Only work contracted to certified DBE prime contractors or subcontractor to firms that have applied for and have been granted status as a DBE by the UUCP shall be considered toward contract goals as established in Subsection A.

2. It shall be the Contractor's responsibility to submit a DBE application so that the UUCP has time to review it. The UUCP will review applications in a timely manner but is not committed to approve DBE status within any given period of time. The UUCP must have ample lead time to review, evaluate, and verify information provided with a application.

3. The DEPARTMENT shall maintain a UUCP Unified DBE Directory of DBE Contractors, vendors, service providers and suppliers that is updated as changes occur for the purpose of providing a reference source to assist any bidder in meeting the requirements of this bid condition. Bidders must use the most current DBE information available on the web site when submitting bids. A current UUCP DBE directory representing certified DBE Contractors is available through the UDOT Civil Rights Office, and also on the Internet at (click on this link):

http://www.udot.utah.gov/index.php?m=c&tid=198

An electronic file of the UUCP DBE Directory is available for downloading to use in the Electronic Bidding System (EBS) at the following URL (click on this link):

http://www.udot.utah.gov/index.php/m=c/tid=317

4. In meeting the requirements of this bid condition, bidders are in no way limited to the DBE Directory referred to in 3 above in seeking out and negotiating with the DBE Contractors and determining which items of work shall be subcontracted to DBE Contractors. Bidders shall exercise their own judgments in selecting any subcontractor to perform any portion of the work.

   The UUCP prior to bid opening must grant DBE status to any DBE Contractor or DBE Joint Ventures. DBE credit will not be allowed toward *race conscious* goals for a firm or joint venture that has not been DBE certified by the UUCP.

D. BIDDING REQUIREMENTS

All bidders must satisfy the bidding requirements of this part. A DBE prime contractor's performance does not count toward fulfilling the DBE goal. A prime bidder who is a DBE contractor shall meet the DBE goal by using DBE subcontractors or by using good faith efforts.

1. DBE Bid Assurance

   a. Race Conscious Goal
   For a bid with a DBE goal greater than 0.0 percent to be considered responsive, *Part* A of the DBE Bid Assurance must be completed and included in the BID PROPOSAL, certifying that they will meet or exceed the Goal for Bid Evaluation established in Subsection A, or that they fail to meet the goal but have and will put forth good faith effort to meet or exceed the goal of the DBE program. *The EBS software based upon the entry of the DBE Commitment and/or the Good Faith Documentation into EBS will complete part A of the DBE Bid Assurance*. In either event, the Contractor shall continue efforts to consider and utilize DBE firms during the performance of the contract.

   b. Race Neutral Goal
   For a bid with a DBE goal of 0.0 percent to be considered responsive, *Part B* of the DBE Bid Assurance must be included in the BID PROPOSAL certifying that the Bidder has utilized equal opportunity action to allow DBE's to compete for and perform on subcontracts. *Part B* of the DBE Bid Assurance will be completed based upon the following information entered into EBS:

      (1) Bids with no subcontracting opportunities
      Bidders who intend to do all the work with their own organization will indicate this in EBS on the Bid Submission Checklist and Forms window. EBS will subsequently indicate on Part B of the DBE Bid Assurance that the Bidder does not intend to sublet a portion of the contract work.

After the award of the bid, in the event that a Contractor indicates that he does not intend to sublet any work and subsequently determines to sublet a portion of the work, the Contractor:

(a) must justify why subcontract quotes were not a part of the Bid Proposal,

(b) must utilize equal opportunity action to allow DBEs to compete for and perform on the work to be sublet,

(c.) must submit the required Race Neutral Documentation with the proposed subcontract.

NOTE: The Contractor may use the 'DBE Contact Log' and 'Quote Comparison' functions in EBS to develop the above requirements for documentation.

(2.) Bids with subcontracting opportunities
Race Neutral measure or program is one that is, or can be, used to assist all small businesses. UDOT must meet the maximum feasible portion if its overall DBE goal by using race -neutral means of facilitating DBE participation.

Bidders who solicit non-DBE subcontract quotes will utilize equal opportunity action to allow DBEs to compete for and perform on subcontracts. If the Bidder has selected 'Intend to Sublet' on the 'Bid Submission Checklist and Forms' window in the EBS software, Part B of the DBE Bid Assurance will indicate that the Bidder intends to sublet a portion of the contract work.

The results of the equal opportunity actions will be included with the EBS prepared Bid Proposal as a *Race Neutral Documentation*. Part B of the Bid Assurance Form will indicate the existence of any of the following types of Race Neutral Documentation that the Bidder has entered into EBS:

(a) DBE Commitment

(b) DBE Contact Log

(c) Quote Comparison

In either event, the Contractor shall continue efforts to consider and utilize DBE firms during the performance of the contract.

2. DBE Commitment

For a bid to be considered responsive, Bidders shall submit the following information regarding DBE compliance with the EBS prepared Bid Proposal:

Submit a DBE Commitment of work that will be subcontracted to certified DBE firm(s) as listed in the UUCP's Directory or DBE firms that have been approved by the UUCP prior to bid opening.

a. The names of DBE firms that will participate in the contract;

b. A specific description of the work each named DBE firm will perform (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Bidders designate otherwise in their DBE Commitment.

(1.) If mobilization is a bid item that is partially committed to a DBE, indicate the dollar amount of the DBE mobilization.
(2.) If a partial quantity is committed to a DBE, indicate the quantity committed to the DBE.

(3.) If a partial performance of an item is committed to a DBE, explain what part of the item the DBE will perform;

c. The dollar amount of participation by each named DBE firm;

d. If the contract goal is not met, evidence of good faith efforts.

The DBE Commitment is to be included in the bid prepared within, and said information will be kept confidential and will not be reviewed unless the Contractor is otherwise determined to be the low Bidder or the DEPARTMENT elects to review said information in making its determination as to award of the contract.

3. Race Neutral Commitment

For a bid to be considered responsive, Bidders shall submit the following information regarding equal opportunity compliance with their EBS prepared Bid Proposal:

Submit a Race Neutral DBE Commitment of work that will be subcontracted to certified DBE firm(s) as listed in UUCP DBE Directory or DBE firms that have been approved by the DEPARTMENT prior to bid opening. The DBE Commitment will include:

a. The bid item(s) or work classification(s) that will be subcontracted;

b. The DBE firms that have been contacted. A reasonable number of DBEs available to perform the anticipated subcontract work must be contacted. The DBE firms must be given a reasonable amount of time to develop subcontract quotes.

c. The results of the contacts with the DBE firms

d. Name(s) of anticipated DBE subcontractor(s)

e. Anticipated work items to be performed by DBE(s)

f. Anticipated dollar amount of subcontract(s).

A specific description of the work each named DBE firm will perform (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Contractors designate otherwise in their DBE commitment.

(1.) If mobilization is a bid item that is partially committed to a DBE, indicate the dollar amount of the DBE mobilization.

(2.) If a partial quantity is committed to a DBE, indicate the quantity committed to the DBE.

(3.) If a partial performance of an item is committed to a DBE, explain what part of the item the DBE will perform;

NOTE: In the EBS (Electronic Bidding System):
Use the quote comparison to document item (a)
Use the contact log to document items (b) and (c).
Use the DBE commitment to document items (d), (e), and (f).

The *Race Neutral Documentation* submitted in the EBS prepared bid, will be kept confidential and not reviewed unless the Contractor is otherwise determined to be the low Bidder or the DEPARTMENT elects to review said information in making their determination as to award of the contract.

4. <u>DBE Written Confirmation</u>

Low Bidder shall submit to the Director of Construction & Materials within three (3) work days after the bid opening written confirmation from each DBE that it is participating in the contract as provided in the Prime Contractor's DBE Commitment or Race Neutral Documentation. The written confirmation shall include the following information:

a. A description of the work that will be performed (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Contractors designate otherwise in their DBE commitment.

(1) If mobilization is a bid item that is partially committed, please confirm the dollar amount of the mobilization to be performed.

(2) If a partial quantity is committed, confirm the quantity to be performed.

(3) If a partial performance of an item is committed, confirm what part of the item will be performed.

(4) Unit bid prices for each bid item that is committed to a DBE.

(5) Total dollar amounts (mathematical extensions) for each bid item that is committed to a DBE

b. The dollar amount of participation by each named DBE firm.

5. Good Faith Efforts

Bidders who fail to meet the DBE goal for bid evaluation must demonstrate with documentary evidence that they made good faith efforts to do so. Bidders are required to include the Good Faith Efforts Documentation with the EBS prepared Bid Proposal. The said information will be kept confidential and not reviewed unless the Bidder is otherwise determined to be the low Bidder or UDOT and authorized representatives elect to review said information in making their determination as to award of the contract. For the bid to be considered responsive, Bidders shall include with the BID PROPOSAL specific documentary evidence that good faith efforts have been made to meet the goal.

Attached hereto and marked Exhibit A, and by this reference made a part hereof, is a list of actions that may be used to prove the kinds of efforts prospective Bidders should consider in their attempts to demonstrate good faith efforts. The list of actions, as contained in Exhibit A, is not intended to be an exclusive list of efforts that a prospective Bidder may wish to consider in demonstrating good faith efforts to satisfy DBE participation requirements. The determination of good faith efforts shall be based upon the information and documentation of the actions supplied by the Bidder with the bid proposal. The DEPARTMENT reserves the right to investigate and verify such information or to request the low dollar Bidder to clarify information submitted at the time of bid.

6. Award of the Contract

The award of the contract, if awarded, will be made to the apparent successful responsive, responsible Bidder who submitted a reasonable bid for the contract and has complied with this Subsection D.

7. Administrative Reconsideration

Good faith efforts as used herein shall be determined on a case by case basis. If it is determined that the apparent low Bidder has failed to meet the requirements of Exhibit A, the bidder will be provided an opportunity for administrative reconsideration.

a. Official(s) who did not take part in the original determination will perform the administrative reconsideration..

b. The Bidder will have the opportunity to provide to written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.

c. The Bidder will have the opportunity to meet in person with the reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.

d. The Bidder will be notified in writing of the decision and the basis for the decision.

e. The reconsideration decision is administratively final and is not appealable to FHWA nor to the DOT.

E. COUNTING DBE PARTICIPATION TOWARD GOALS FOR BID EVALUATION

1. The DEPARTMENT will recognize and grant DBE credit toward the goal for bid evaluation (*race conscious* goals) for work committed to DBE subcontractors ONLY in the types of work for which DBE certification has been granted by the UUCP prior to bid opening. It is necessary that all bidders refer to the UUCP DBE Directory for direction and guidance. A current copy of the DBE directory is available through the Civil Rights Office and on the Internet at (click on this link):

http://www.udot.utah.gov/index.php?m=c&tid=198

An electronic file of the DBE Directory is available for downloading to use in the Electronic Bidding system (EBS) at the following URL (click on this link):

http://www.udot.utah.gov/index.php/m=c/tid=317

2. The DEPARTMENT will grant DBE credit toward *race neutral* goals for work performed by firms who are not DBE certified prior to bid opening or who bid types of work for which DBE certification has not been granted by the DEPARTMENT prior to bid opening but subsequently are granted DBE certification.

3. Commitments to DBEs that exceed the Goal for Bid Evaluation will be considered as both race conscious and race neutral. The dollar amount of the Goal for Bid Evaluation will be considered to be race conscious participation. Any dollar amounts in excess of the Goal for Bid Evaluation will be considered as race neutral participation.

F. COUNTING DBE PARTICIPATION TOWARD GOALS FOR PERFORMANCE

Subcontracts to DBEs that exceed the *Goal For Bid Evaluation* will be considered in part as race conscious participation and in part as race neutral participation. Any dollar amounts in excess of the *Goal For Bid Evaluation* will be considered as race neutral participation.

It is intended that the Contractor shall utilize the subcontractors designated in the DBE Commitment in the performance of the contract. Any changes in the Contractor's DBE Commitment, such as substitution of a DBE subcontractor, substitution of contract items, or decrease in total dollar amount must be approved by the DEPARTMENT and must be covered by a Change Order. Unauthorized substitutions or eliminations may result in the imposition of sanctions. Failure to meet the Goal for Performance, that is established at the time of award by the Contractor's DBE Commitment, without adequate justification, including concurrence of the ENGINEER and Civil Rights Manager, shall result in the imposition of sanctions as provided in Part I of this Special Provision.

1. Only the value of the work actually performed by the DBE will count toward DBE goals.

2. Contractors may count toward their contract goals a portion of the total dollar value of a contract with a joint venture eligible under the standards of this bid condition equal to the percentage of the ownership and controls of the DBE partner in the joint venture.

3. The ENGINEER will recognize and grant DBE credit for work subcontracted and performed by DBE subcontractors ONLY in the types of work for which DBE certification has been granted by the UUCP prior to bid opening. It is necessary that all Bidders refer to the UUCP'DBE Directory for direction and guidance. A current copy of the UUCP DBE directory is available through the Civil Rights Office and on the Internet at (click on this link):

http://www.udot.utah.gov/index.php?m=c&tid=198

An electronic file of the DBE Directory is available for downloading to use in the Electronic Bidding system (EBS) at the following URL (click on this link):

http://www.udot.utah.gov/index.php/m=c/tid=317

4. Contractors may count toward their goals only the value of the work actually performed by the DBE toward the DBE goals.

    a. Work performed by the DBE's own forces using "regular employees" and "regular equipment."

    b. The cost of supplies and materials obtained and purchased by the DBE and equipment leased for the work of the contract.

    c. Work that a DBE subcontracts to a lower tier DBE firm.

5. Contractors may not count toward the DBE goals:

    a. Supplies and material purchased and equipment leased by the DBE from the prime Contractor or its affiliates or another subcontractor on the project.

    b. Work that a DBE subcontracts to a lower tier non-DBE firm.

6. Contractors may count toward their goals only expenditures to a DBE that performs a commercially useful function in the work of the contract.

    a. A DBE performs a "commercially useful function" when it is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

    b. The DEPARTMENT shall evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

    c. A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the DEPARTMENT must examine similar transactions, particularly those in which DBEs do not participate.

d. A DBE does not perform a commercially useful function if it does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved.

7. The DEPARTMENT shall use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

a. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

b. The DBE must be responsible for the management and supervision of the entire trucking arrangement for the purpose of meeting DBE goals.

c. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks its owns, insures, and operates using drivers it employs.

d. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

e. The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit *for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement.*

Example: *Leases two trucks from DBE Firm Y and six trucks from non-DBE Firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. With respect to the other two trucks provided by Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks Firm X receives as a result of the lease with Firm Z.*

f. For purposes of this paragraph (d), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

8. Contractors may count expenditures with DBEs for materials or supplies as provided in the following:

a. If the materials or supplies are obtained from a DBE manufacturer, 100 percent of the cost of the materials or supplies counts toward DBE goals.

For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

b. If the materials or supplies are purchased from a DBE regular dealer, 60 percent of the cost of the materials or supplies counts toward DBE goals.

For purposes of this paragraph, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(1) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

(2) A firm may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business if the firm both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an *ad hoc* or contract-by-contract basis.

(3) Packagers, brokers, manufacturers representatives, or other persons or firms who arrange, or expedite, transactions are not regular dealers.

(4) A DBE trucking company that picks up a product from a manufacturer or regular dealer and delivers the product to the Contractor performs a delivery service. Credit will not be given based on a percentage of the cost of the product; credit will be allowed only for the cost of the transportation service.

9. If the materials or supplies are purchased from a service provider, the fees or commission charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies, count toward the DBE goals.

A Service Provider is a business that is neither a manufacturer nor a regular dealer but simply transfers title of a product from manufacturer to ultimate purchaser or a firm that puts a product into a container for delivery. A service provider charges a fee or a commission for assistance in the procurement of the materials and supplies, or fees or transportation for the delivery of materials or supplies required on a job site.

a. Only the fees, commissions, or transportation performed by the DBE service provider count toward the DBE goals. The DEPARTMENT must determine that the fees are reasonable and not excessive as compared with fees customarily allowed for similar services.

b. No portion of the cost of the materials and supplies count toward the DBE goals. Documentary evidence of the supply agreements, i.e., sales contract, purchase order, etc., shall be submitted to the Resident Engineer or Consultant Engineer at the Preconstruction Conference. The agreement shall set forth the estimated quantities, unit prices, total dollar amounts, material guarantees, delivery, and payment requirements including the requirements listed part E, 4, e, of this DBE Special Provision.

10. Prompt payment for the work accomplished is an integral part of the concept of commercially useful function.

See Section F, Subsection 6,a for a definition of “commercially useful function.”

G. CONTRACTOR’S RESPONSIBILITY

1. It is the Contractor’s responsibility to determine the level of professional competence and financial responsibility of any proposed DBE subcontractor. The Contractor shall ascertain that the proposed DBE subcontractor is particularly experienced and equipped for the work of the subcontract.

2. It is the Contractor’s responsibilities to monitor and assure that DBE’s listed to fulfill DBE goals perform a commercially useful function.

H. DBE SUBCONTRACTOR'S FAILURE TO PERFORM SUCCESSFULLY

If, during the performance of the contract, the Prime Contractor determines that a DBE subcontractor is unable to perform successfully, the Contractor shall make good faith efforts to replace the DBE subcontractor with another DBE to fulfill the Goal for Bid Evaluation. For Race Conscious DBE participation, the Contractor shall consider the uncompleted DBE committed work items as well as other work items as a part of the good faith efforts. All substitutions of DBE subcontractors shall receive prior approval by the DEPARTMENT.

The Contractor shall not substitute DBE subcontractor(s), work item(s), nor decrease dollar amount(s) as indicated in the Contractor's DBE Commitment without prior submission of written justification to the ENGINEER and without prior approval of the ENGINEER and the Civil Rights Manager.

The Contractor shall not substitute DBE subcontractor(s), work item(s), nor decrease dollar amount(s) as indicated in the Contractor's DBE Commitment Substitutions without prior submission of a written statement from the DBE consenting to the substitution or decrease and holding the ENGINEER harmless for approving the substitution.

Unauthorized substitutions of the DBE(s), underruns of work item(s), or decreases in dollar amount(s) may result in the imposition of sanctions as allowed under Section I.

UDOT reserves the right to authorize completion of the work that was subcontracted to a DBE who is unable to perform successfully by either of the following methods:

1. Approve, at no additional cost to the DEPARTMENT, a replacement DBE subcontractor and, when appropriate, modify the contract to provide for reasonable extra time necessary to obtain a DBE replacement at no additional cost to the DEPARTMENT.

2. Direct the Contractor to perform at unit bid prices. In the event this option is selected, the percentage DBE goal will be adjusted as may be appropriate.

I. SANCTIONS

1. The Contractor's DBE Commitment becomes a 3-part commitment comprised of the DBE Contractor(s), work item(s) and dollar amount(s). The Commitment becomes a contract specification upon award of the contract and becomes the minimum goal for contract performance.

If the Contractor fails to achieve the minimum goal, established in the contract at the time of the award of the contract or later modified, the contract payments shall be reduced as a liquidated damage and not as a penalty by an amount equal to the dollar amount of work not performed by the DBE. The dollar amount of any sanction will be computed using the unit prices indicated in the DBE subcontract

Exceptions:

a. Any authorized adjustment in the DBE Commitment that has been approved by the ENGINEER and Civil Rights Manager.

b. Race neutral participation.

2. The ENGINEER shall deduct maximum points for *Compliance with EEO* when completing the *Contract Performance Report.*

J. RECORD KEEPING

1. The DEPARTMENT must create and maintain a Bidders list consisting of all firms bidding on prime contracts and bidding or quoting subcontractors on DOT-assisted projects. For every firm, the following information must be submitted annually:

a. Firm name

b. Firm address

c. Firm's status as a DBE or non-DBE

d. Age of firm

e. Annual gross receipts of the firm.

Every firm bidding or quoting as a prime or subcontractor at any level on DOT-assisted projects must register annually with UDOT.

NOTE: Items (a) and (b) should be completed in the EBS software by using the 'Quote Comparison' and submitted with your bid.

2. With the bid or no later than 10 work days after bid opening date, each and every prime bidder must submit to The DEPARTMENT a list of all firms bidding and/or quoting as subcontractors, service providers or suppliers.* The Prime Bidder must also submit for each and every firm sub-quoting the following information:

a. Firm Name

b. Firm address

c. Work classification(s) bid by subcontractor, service provider or supplier:

(1) Building
(2) Concrete: Curb & gutter, Flatwork, Inlet Boxes, etc.
(3) Concrete: Structural
(4) Consulting firms
(5) Demolition
(6) Electrical: Hwy lighting, signals & fiber optics
(7) Equipment rentals and sales
(8) Excavation
(9) Fencing
(10) Grading
(11) Guardrail
(12) Landscaping & erosion control
(13) Miscellaneous
(14) Painting: Highway structures
(15) Painting: Highway striping & painted messages
(16) Paving: Asphalt highway & runway, etc.
(17) Paving: Concrete
(18) Paving: Miscellaneous
(19) Pipe Culverts, drainage, sewer & water
(20) Reconstruction : Manholes, etc.
(21) Rotomilling
(22) Sawing & sealing
(23) Signs permanent
(24) Steel reinforcing
(25) Steel structural
(26) Surveying
(27) Traffic Control: Flagging
(28) Traffic Control: Temp. Signs and Devices
(29) Trucking
(30) Supplier: Manufacturer
(31) Supplier: Regular Dealer
(32) Supplier: Service Provider

*NOTE: This requirement can be met with the ‘Quote Comparison’ function in EBS. The report must be printed and faxed to the Civil Rights Department at (801) 965-4101.

Exhibit A

Suggested Actions and Required Documentation to Demonstrate
Good Faith Efforts to Comply With DBE Requirements

A Bidder must show that it took necessary and reasonable steps to achieve a DBE goal that, by their scope, intensity, and appropriateness, can reasonably be expected to fulfill the program requirement. The efforts employed should be those that would be taken if a Bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract. Goal. Mere *pro forma* efforts are not good faith efforts to meet the DBE contract requirements.

Documentary evidence of each action taken must be submitted with the Bid Proposal.

The following is taken, with some modification, from CFR 49 Part 26, Appendix A. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive.

GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When the DEPARTMENT establishes a contract goal on a Federal aid contract, a Bidder must, in order to be responsive, make good faith efforts to meet the goal. The Bidder can meet this requirement in either of two ways:

A. The Bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose.

B. If it doesn't meet the goal, the Bidder can document adequate good faith efforts. This means that the Bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part that, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which the DEPARTMENT has established a contract goal, CFR 49, Part 26 requires UDOT to use the good faith efforts mechanism of this part. It is up to the DEPARTMENT to make a fair and reasonable judgment whether a Bidder that did not meet the goal made adequate good faith efforts. It is important for the DEPARTMENT to consider the quality, quantity, and intensity of the different kinds of efforts that the Bidder has made. The efforts employed by the Bidder should be those that one could reasonably expect a Bidder to take if the Bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. The DEPARTMENT emphasizes, however, that its determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III The U. S. Department of Transportation also strongly cautions the DEPARTMENT against requiring that a Bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the Bidder makes an adequate good faith efforts showing. This rule specifically prohibits UDOT from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions that UDOT should consider as part of the Bidder’s good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The Bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The Bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. Negotiating in good faith with interested DBEs.

(1) It is the Bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration.

(a) The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable.

(b) No specific price differential has been established by 49 CFR 26. This approach allows flexibility.

(c) Along with the reasonableness of the cost necessarily comes the fact that prime Contractors are not expected to bear unreasonable costs.

(d) Any burden that a non-DBE subcontractor might face is also limited by the reasonableness of competing bids.

(3) The ability or desire of a prime Contractor to perform the work of a contract with its own organization does not relieve the Bidder of the responsibility to make good faith efforts. Prime Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(4) The ability or desire of a prime Contractor to bundle the work of a subcontractor who wishes to perform all the work of the subcontract with its own organization does not relieve the Bidder of the responsibility to require a subcontractor to make good faith efforts. Subcontractors are not required to accept higher quotes from lower tier DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

NOTE: The DBE 'Contact Log' in EBS, submitted as part of the Bid Proposal, can be used to document the following efforts:

IV. A.
IV. C.
IV. D. (1)

The 'Quote Comparison' in EBS, submitted as part of the Bid Proposal, can be used to document the following efforts:

IV. B.
IV. D. (3)

V. In determining whether a Bidder has made good faith efforts, the DEPARTMENT may take into account the performance of other Bidders in meeting the contract. For example, when the apparent successful Bidder fails to meet the contract goal, but others meet it, UDOT may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful Bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other Bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful Bidder having made good faith efforts.

Submit with the Bid Proposal documentary evidence to prove that good faith efforts were accomplished:

1. Submit copies of all solicitations: correspondence, faxes, advertisements, telephone logs with dates, times, names of persons contacted, nature of conversation, DBEs' responses, and etc.

2. If DBEs submitted quotes that were not used because the range of additional costs was determined to be excessive or unreasonable, submit the range that has been determined by the Bidder to be a reasonable range of additional costs and explain how that range was determined.

3. As a part of demonstrating a reasonable range of additional costs, submit copies of all subcontractor quotes, copies of spread sheet(s) which compare all DBE quotes with non-DBE quotes and which include bid item(s) quoted, work classifications, quantities, prices, and dollar amounts.

4. Submit a narrative of specific names and types of information, assistance, considerations given, and efforts to assist DBEs under Item IV, subparts C through F.

DBE BID ASSURANCE
COMPLETE ONLY PART A. OR PART B.

PART A. RACE CONSCIOUS DBE PARTICIPATION
SPECIFIC ASSIGNED *CONTRACT DBE GOAL* FOR BID EVALUATION_____PERCENT

If the DBE goal which is indicated in Section A, CONTRACT GOAL, of APPENDIX A, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE (DBE) is greater than 0.0 percent, complete only Part A, and submit *DBE Commitment*, and if applicable, *Documentation of Good Faith Efforts*.

By signing the BID REPORT (either manually or electronically), it is understood that those individuals who sign as owners or authorized representatives of the Bidder, have read and are familiar with APPENDIX A, SPECIAL PROVISION, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE and hereby certify that good faith efforts have been utilized to meet or exceed the goal of the DBE Program as established by the DBE Special Provision.

Indicate intended DBE commitment.

_____ We intend to meet or exceed the contract goals as per the DBE Commitment which is submitted with the Bid Proposal.

RACE CONSCIOUS AND RACE NEUTRAL COMMITMENT _____ PERCENT

_____ We fail to meet the advertised goal. This firm commits to DBE participation as per the DBE Commitment that is submitted with the EBS Bid Proposal and to continue Good Faith Efforts throughout the performance of the project. Documentation of Good Faith Efforts is submitted with the Bid Proposal, including:

1. DBE Contact Log Report
2. Quote Comparison Report

PART B. RACE NEUTRAL DBE PARTICIPATION
ASSIGNED *CONTRACT DBE GOAL* FOR BID EVALUATION
_____ PERCENT

If the DBE goal, which is indicated in Section A, CONTRACT GOAL, of APPENDIX A, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE (DBE) is 0.0 percent, complete only Part B and submit *Race Neutral DBE Information*.

Federal Projects With Full Size Plan Sheets

By signing the BID REPORT (either manually or electronically), it is understood that those individuals who sign as owners or authorized representatives of the Bidder, have read and are familiar with APPENDIX A, SPECIAL PROVISION, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE and hereby certify that equal opportunity action has been utilized to allow DBEs to compete for and perform on subcontracts.

_____ We do not intend to sublet a portion of the contract work.

_____ We intend to sublet a portion of the contract work. Our firm has taken equal opportunity action to allow DBEs to compete for and perform on subcontracts. Documentation of Race Neutral efforts is submitted with the Bid Proposal, including:

_____ 1. RACE NEUTRAL DBE COMMITMENT _____ PERCENT

_____ 2. DBE Contact Log Report

_____ 3. Quote Comparison Report

IX. Attention Contractors

E.E.O. Affirmative Action Requirements on Federal and Federal-Aid Construction Contracts of $10,000 or More

Include the Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity, Executive Order (EO) 11246, as amended (incorporated by reference & Appendix A - below) and the Standard Federal Equal Employment Opportunity Construction Contract Specifications set forth in §60-4.3 (incorporated by reference) in all requests for bids/solicitations on all contracts and subcontracts of $10,000 or more

Include in Appendix A, Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity, the goals established by the Office of Federal Contract Compliance Programs (OFCCP) for minority and female participation in each craft on all contracts and subcontracts.

APPENDIX A (EO 11246)

The OFCCP goals for minority representation in each trade are shown below. The goal for female utilization (6.9 percent) applies to all contracts and subcontracts irrespective of their geographical location.

COUNTY	GOAL	COUNTY	GOAL	COUNTY	GOAL
Beaver	12.6	Box Elder	5.1	Cache	5.1
Carbon	5.1	Daggett	5.1	Davis	6.0
Duchesne	5.1	Emery	5.1	Garfield	12.6
Grand	10.2	Iron	12.6	Juab	5.1
Kane	12.6	Millard	5.1	Morgan	5.1
Piute	5.1	Rich	5.1	Salt Lake	6.0
San Juan	10.2	Sanpete	5.1	Sevier	5.1
Summit	5.1	Tooele	6.0	Uintah	5.1
Utah	2.4	Wasatch	5.1	Washington	12.6
Wayne	5.1	Weber	6.0		

These goals are applicable to all contractors' or subcontractors' construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The Bidder's attention is called to the "Equal Opportunity Clause" (form FHWA 1273- II 1 b, included in this contract) and the "Standard Federal Equal Employment Specifications" set forth in 41 CFR Part 60-4 (incorporated by reference).

Compliance with the Executive Order and the regulations in 41 CFR part 60-4 is based on the implementation of the "Equal Opportunity Clause," specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and the efforts to meet the goals.

Provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification lists the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract will be performed.

Under Section 303 of EO 11246, only the U. S. Department of Labor (DOL) has the authority to determine compliance with EO 11246 and its implementing regulations. The Federal Highway Administration (FHWA) and the State highway agency (UDOT) do not have independent authority to determine compliance with EO 11246, 41 CFR Chapter 60, or the minority and female participation goals established by the Office of Federal Contract Compliance Programs (OFCCP), pursuant to 41 CFR Chapter 60.

If the State highway agency (UDOT) or the FHWA becomes aware of any possible violations of EO 11246 or 41 CFR Chapter 60, each has the authority and the responsibility to notify the OFCCP.

APPENDIX B

As used in these specifications:

a. Covered area: The geographical area described in the solicitation from which this contract resulted;

b. Director: Director, Office of Federal Contract Compliance Programs, United State Department of Labor, or any person to whom the Director delegates authority;

c. Employer identification number: The Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. Minority includes:

   (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);

   (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

   (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

   (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

X. Specific Equal Employment Opportunity Responsibilities

1. General

   a. The State Transportation Agency (STA) and Federal Highway Administration (FHWA) have the authority and the responsibility to ensure compliance with 23 USC Section 140 and Title VI of the Civil Rights Act of 1964, as amended, and related regulations, including 49 CFR Parts 21 and 23, and 23 CFR Parts 200, 230, and 633. Pursuant to this authority, the STA and the FHWA will conduct compliance reviews of contractors on federally funded highway projects to determine compliance with these laws and related regulations. The STA will prepare complete, written reports of findings of the compliance reviews. The FHWA will analyze the reports, and the evidence on which they are based.

   b. A contractor's EO requirements are in the contract provisions referenced in the FHWA-1273 (included herein). These include contractor acceptance of Section II, 1 c, and the obligation of the contractor to comply with specific EO activities at a minimum.

   c. Submit form PR-1391 in July and at other times when such information is required by the STA or the FHWA; and submit other documentation and reports as requested by the STA or the FHWA.

2. Equal Employment Opportunity (EEO)

   a. Where minorities and women have been excluded from certain classifications in a contractor's work force, the EEO affirmative action requirements specified in the contract will be implemented in good faith to provide EEO.

   b. The contractor will use the avenue afforded by the Training Special Provision (included herein) to increase minority and female employment in crafts where they have been underrepresented.

3. Minority and Female Average Availability Percentages – Utah

   a. Average percentages for minority (M) and female (F) availability in each trade, by County, are shown below. Availability is defined as "an estimate of the number of qualified minorities or women available for employment in a given job group."

COUNTY	M	F	COUNTY	M	F	COUNTY	M	F	COUNTY	M	F
Beaver	6.8	3.0	Box Elder	9.9	5.0	Cache	9.9	5.0	Carbon	12.3	3.0
Daggett	12.3	3.0	Davis	8.9	3.0	Duchesne	12.3	3.0	Emery	15.5	5.0
Garfield	15.5	5.0	Grand	15.5	5.0	Iron	6.8	3.0	Juab	8.2	4.0
Kane	15.5	5.0	Millard	6.8	3.0	Morgan	11.1	3.0	Piute	15.5	5.0
Rich	9.9	5.0	Salt Lake	21.6	5.0	San Juan	15.5	5.0	Sanpete	8.2	4.0
Sevier	15.5	5.0	Summit	11.1	3.0	Tooele	8.2	4.0	Uintah	12.3	3.0
Utah	11.9	4.0	Wasatch	11.1	3.0	Washington	10.0	4.0	Wayne	15.5	5.0
Weber	17.8	5.0									

b. The use of these average percentages in no way precludes the contractor from performing and documenting good faith efforts to recruit and employ minorities and females.

4. Compliance Determinations

a. The list below is a set of "Good-Faith Efforts" criterion established in FHWA's regulatory and policy requirements that may be used to determine a contractor's good faith efforts:

1. Contractor's EEO Policy
2. Dissemination of the EEO Policy
3. Authority and Responsibility of EEO Officer
4. Periodic EEO meetings (EEO indoctrination)
5. Notices/posters on bulletin board
6. Advertising as an "EEO Employer"
7. Recruitment – Systematic and direct recruitment efforts with sources likely to yield minorities and women
8. Educate all new supervisors within 30 days of reporting to duty
9. Encourage present employees to refer minorities and women
10. Evaluates the spread of wages to determine whether discrimination exists
11. Investigates all complaints, promptly, and appropriate corrective action is taken
12. Assist in locating, qualifying, and increasing the skills of minorities and women
13. Fully uses training programs and advises employees and applicants of opportunities
14. Minorities and women exist in contractor's training program
15. Ensure nonsegregated facilities
16. Minorities and women are employed in all occupations, crafts, and job classifications on an equal basis
17. Procedures establishing the monitoring of subcontractors' compliance with nondiscrimination, EO and EEO obligations
18. The need for adequate records and reports

19. Minorities and women reach accumulating work hours expected based on their representation

b. Affirmative Action is determined based on the evaluation of the contractor's compliance with all of the above good faith efforts and on the contractor's efforts to achieve maximum results from the actions.

c. A contractor is in compliance when there is no evidence of discrimination in employment, training, DBE, Indian Preference provisions, equal opportunity requirements, or evidence every good faith effort has been made.

5. Training Special Provisions

This Training Special Provisions supersedes subparagraph II 6b of the FHWA-1273, and is an implementation of 23 U.S.C.C.140 (a).

Provide training as follows as part of the equal employment opportunity affirmative action program:

Provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under the special provision is ____0____ (amount to be filled in by the State Highway Department (STA)).

If a portion of the contract work is subcontracted, determine how many, if any, of the trainees are to be trained by the Subcontractor. Make this training special provision applicable to the subcontract. Retain the primary responsibility for meeting the training requirements imposed by this special provision. Where feasible, 25 percent of apprentices or trainees in each occupation will be in their first year of apprenticeship or training.

Distribute the number of trainees among the work classifications on the basis of needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, submit to the State highway agency for approval the number of trainees to be trained in each selected classification and training program to be used. Specify the starting time for training in each of the classifications. The STA gives credit for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program. Reimbursement is made for the trainees as provided below.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. Demonstrate the steps taken to achieve compliance with

this Training Special Provision. This training commitment is not intended nor used to discriminate against any applicant for training, whether a member of a minority group or not.

Do not employ a trainee in any classification in which they have successfully completed a training course leading to journeyman status or in which they have been employed as a journeyman. Include appropriate questions in the employee application or by other suitable means to satisfy this requirement. Document the findings in each case.

The training program selected, and approved by the STA and the FHWA, establishes the minimum length and type of training for each classification in that program. The STA and the FHWA approves a program if it meets the equal employment opportunity obligations and qualification of the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and training are considered acceptable if administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program is obtained from the State prior to commencing work on the classification covered by the program. Provide training in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification if approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, reimbursement is made of 80 cents per hour for training given an employee, on this contract, in accordance with an approved training program. This reimbursement is made even though additional training program funds are received from other sources provided such other source does not specifically prohibit other reimbursements. Reimbursement for off-site training indicated above may only be made where the trainees are concurrently employed on a Federal-aid project and one or more of the following is done: contributes to the cost of the training, provides the instruction to the trainee, or pays the trainee's wages during the off-site training period.

No payment of the 80 cents per hour is made if either the failure to provide the required training or the failure to hire the trainee as a journeyman occurs and evidences a lack of good faith effort in meeting the requirements of this Training Special Provision. A trainee begins training on the project as soon as feasible after start of work. The trainee remains on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. Responsibilities under this Training Special

Provision are fulfilled if acceptable training to the number of trainees specified is provided.

Trainees are paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

Furnish the trainee a copy of the program to be followed in providing the training. Provide each trainee with a certification showing the type and length of training satisfactorily completed.

Provide for the maintenance of records and furnish periodic reports documenting their performance under this Training Special Provision. UDOT form C-138, Monthly Training Report satisfies this reporting requirement.

FHWA-1273 Electronic version -- March 10, 1994

XI. Required Contract Provisions

FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4, and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual

relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality

other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. **Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the

standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. **Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. **Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

> *"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans,*

maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;
Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. **Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

GENERAL DECISION: **UT20030024** 08/12/2005 UT24

Date: August 12, 2005
General Decision Number: **UT20030024** 08/12/2005

Superseded General Decision Number: UT020024

State: **Utah**

Construction Type: **Highway**

County: **Utah County in Utah.**

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	06/13/2003
1	01/23/2004
2	03/05/2004
3	09/17/2004
4	08/12/2005

*** ENGI0003-013 07/01/2005**

	Rates	Fringes
Power equipment operators:		
Bulldozer		
D7 or less	$ 19.68	10.03
over D7	$ 20.68	10.03
Crane		
45 to 100 tons	$ 24.13	10.03
Over 100 tons	$ 26.03	10.03
Heavy Duty Repairman	$ 24.86	10.03
Loader		
2 1/2 to 10 cu. yds	$ 20.68	10.03
over 10 cu. yds	$ 21.68	10.03
Lube and Service Engineer	$ 19.68	10.03
Mechanical Finisher		
Operator (Asphalt or		
Concrete)	$ 20.68	10.03
Motor Patrol (Blade,		
Smooth/Finish)	$ 21.68	10.03
Roller, Asphalt	$ 19.68	10.03
Screedman	$ 18.72	10.03

IRON0027-008 07/01/2003

	Rates	Fringes
Ironworkers; Structural,		
Reinforcing and Ornamental	$ 21.76	9.67

LABO0295-001 07/01/1999

	Rates	Fringes
Laborers:		
Air Track and Similar Drills	$ 15.55	2.34

SUUT1992-013 03/26/1992

	Rates	Fringes

Carpenter	$ 16.13	2.65
Cement Mason	$ 14.40	2.41
Flagger	$ 6.73	1.75
Laborers:		
Concrete Laborer (Compaction, underground fine grading, operation of shute or bucket)	$ 12.27	2.64
General, Asphalt Raker, Fence Erection Laborer	$ 12.27	2.53
Grade Laborer (Uses hand held level to check grade, inserts grade stakes in concrete)	$ 12.27	2.53
Laborer, Power Tools (Cutting Torch, Operators of gasoline, electric or pneumatic tools, (e.g.) compressor, compactor, jackhammer, vibrator, concrete cutting torch)	$ 12.89	2.66
Laborer, Sandblaster (Surfaces that will not be repainted but including highway striping)	$ 12.70	2.79
Pipelayer (Smooths sides and bottom of trenches, does rigging of pipe, assembles and installs concrete and tile pipe)	$ 12.52	2.79
Powderman	$ 13.17	2.72
Painters:		
Special Coatings Applicator	$ 14.30	1.62
Spray	$ 14.05	1.62
Power equipment operators:		
Backhoe, Tire & Track, under 5 cu. yds	$ 15.31	5.52
Backhoe,Tire & Track, over 5 cu. yds	$ 19.22	5.39
Blade, Rough	$ 15.49	5.11
Compactor	$ 15.48	7.08
Concrete Pump Operator	$ 16.75	6.93
Crane, under 45 tons	$ 18.12	7.04
Drill Rig Operator	$ 17.15	7.08
Excavator	$ 18.05	7.08
Laydown Machine, Asphalt/Concrete	$ 15.64	5.38
Roller, Grade/Compaction	$ 13.90	5.21
Scraper, Single Engine	$ 18.57	6.45
Sheepfoot Compactor	$ 16.83	7.16
Tractor, Small Rubber Tire with attachments	$ 17.62	6.40
Tractor, Small Rubber Tire	$ 17.42	7.08
Sandblaster (All Surfaces that will be repainted except highway striping)	$ 14.05	1.62

Truck Driver, Dump (Dump Trucks - Water Level Capacity (Botom, End and Side), Including Dumpster Truck, Turnawagons, Turnarockers and Dumpcrete)		
8 cu. yds. and less than 14 cu. yds.	$ 15.99	5.72
Less than 8 cu. yds.	$ 15.84	5.72
Truck drivers: (Water, Fuel and Oil Trucks:)		
2500 Gallons to less than 4000 Gallons	$ 15.14	5.72
4000 Gallons to less than 6000 Gallons	$ 16.29	5.72
Less than 1200 Gallons	$ 14.83	5.72
Oiler Spreader Operator where Boot Man is not required	$ 16.54	5.72
Pick Up Truck	$ 15.67	5.72
Transport Truck	$ 11.61	2.51

TEAM0222-004 07/01/2003

	Rates	Fringes
Truck drivers:		
Dump Trucks - Water Level Capacity (Bottom, End, Side) (Including Dumpster Truck, Turnawagons, Turnarockers and Dumpcrete):		
14 cu. yds. and less than 35 cu. yds.	$ 16.49	7.52
Water, Fuel and Oil Trucks:		
1200 Gallons to Less Than 2500 Gallons	$ 16.19	7.52

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination

* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Federal Projects With Full Size Plan Sheets

XIII. Special Provisions and Supplemental Specifications

January 1, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 00250S

PREBID CONFERENCE

Add Section 00250:

PART 1 GENERAL

1.1 SCHEDULING

A. A mandatory Pre-Bid Conference will be held at the following time and location:

Date: **Wednesday, October 5, 2005** Time: **10:00 a.m.**

Location: **Provo City Engineering Department**
Downstairs Conference Room
1377 S 350 E
Provo, Utah

Project ID: **CM-LC49(86)**

B. Representatives of Construction and Design will be present to discuss details related to this project.

C. No bidding plan sets will be sold after the above date.

D. Bids submitted by Contractors who did not attend the pre-bid conference will be non-responsive.

PART 2 PRODUCTS **Not Used**

PART 3 EXECUTION **Not Used**

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 00555M

PROSECUTION AND PROGRESS

Replace PART 1.1 RELATED SECTIONS with the following:

A.	Section 00570:	Definitions
B.	Section 01282:	Payment
C.	Section 01355:	Environmental Protection
D.	Section 01554:	Traffic Control
E.	Section 01571S:	Temporary Environmental Controls
F.	Section 13597S:	ATMS Integration
G.	Section 13598S:	NID Integration

Replace PART 1 GENERAL, ARTICLE 1.6 BASELINE CONSTRUCTION SCHEDULE, Paragraph A as follows:

A. Develop a baseline construction schedule using Microsoft Project. Assure the schedule accurately reflects the proposed approach to accomplish the work outlined in the Contract documents and conforms to all requirements of this article.

Replace PART 1 GENERAL, ARTICLE 1.7 CONSTRUCTION SCHEDULE UPDATES, Paragraph A and Paragraph D. as follows:

A. Update the construction schedule as requested by Engineer or at a minimum on a monthly basis using the closing date for the monthly progress payment and submit to the Engineer.
   1. The Engineer does not approve progress payment until the schedule update has been received.
   2. Show actual progress for each activity; actual start and finish dates for completed activities; actual start dates, percent complete, and remaining duration for activities in progress; projected sequences of activities for future work; revised relationships and durations for unfinished activities, if warranted; and a well defined critical path.

D. The Engineer conducts a review of the updated construction schedule.
   1. This review occurs within one week of the receipt of the Contractor's updated information and serves as the forum to discuss activity slippages, remedies, schedule revisions, coordination requirements, change orders, potential Contractor delay claims, and other relevant issues.
   2. The Contractor's project manager, scheduler, and appropriate field personnel participate in these reviews.
   3. Compile an action item list that describes who is responsible for existing or pending issues and the date by which the issue needs to be resolved to avoid contract delays.
   4. Submit a revised schedule update if necessary.

Replace PART 1 GENERAL, SECTION 1.9 LIMITATION OF OPERATIONS as follows:

1.9 LIMITATION OF OPERATIONS

A. Conduct the work to minimize interference with traffic.

B. Provide a uniformed, off-duty police officer to control traffic at signalized intersections during major operations of work and when signals are turned off or in flash mode.

C. Saturdays, Sundays or holidays: Do not perform any work without written approval from Engineer except repair or servicing of equipment, protection of work, maintenance or curing of concrete, or maintenance of traffic.

D. Night work:
   1. Provide five-calendar day's notice before starting night work.
   2. Provide adequate lighting for performing satisfactory inspection and construction operations.
   3. Control noise and vibration in accordance with Section 01355.

E. Prepare and Submit Storm Water Pollution Prevention Plan in accordance with the requirements of Section 01571S: Temporary Environmental Controls, and obtain approval from Engineer prior to commencing any construction or mobilization activities.

F. <u>Do not commence construction activities prior to March 1, 2006.</u>

G. Maintain access to adjacent property owner(s) open at all times during construction. Before beginning construction on locations that might affect property access point(s), coordinate with any property owner(s) who will be affected by these activities.

H. Develop traffic control plan in accordance with Section 01554: Traffic Control and submit it to Engineer for review and approval prior to construction.

I. Do not use any public or private streets for parking of vehicles or equipment, storage of materials, staging areas, or other activities. Limit the presence of equipment in these areas to that required for direct construction on those areas under construction.

J. Coordinate with appropriate utility companies as needed before and during construction to ensure that no utility services are disrupted or facilities damaged.

K. Coordinate with appropriate personnel before commencing any activity that might affect the operation of existing traffic signals. Contact Casey Serr, Provo City Traffic Engineer [ph. (801) 852-6742] or Grand Jackson UDOT Region 3 [ph. (801) 227-8040],

Replace PART 1 GENERAL, ARTICLE 1.12 CONTRACT TIME, Paragraph D, E, and F as follows:

D. **Substantial Completion -** the day, determined by the Engineer, when all of the following have occurred:
   1. The public (including vehicles and pedestrians) has full and unrestricted use and benefit of the facilities both from the operational and safety standpoint, and
   2. All safety features are installed and fully functional, including, but not limited to, illumination, signing, striping, barrier, guard rail, impact attenuators, delineators, and all other safety appurtenances, and
   3. Minor incidental work, replacement of temporary substitute facilities or correction or repair remains for the Physical Completion of the Contract, and
   4. Compliance with Section 13597 ATMS Integration and Section 13598S NID Integration remains for the Physical Completion of the Contract, and
   5. The Contractor and Engineer mutually agree that all work remaining will be performed without lane closures, trail/sidewalk closures, or further delays, disruption, or impediment to the public.

E. **Physical Completion** - the day, determined by the Engineer, when all construction work required by, or incidental to, the Contract (including all punch list work, final cleanup, and demobilization and further including compliance with Section 13597 ATMS Integration and Section 13598S NID Integration) is physically completed. This is further defined as that

point in time where the only outstanding obligation under the Contract is the submittal or processing of documentation.

F. **Contract Completion** - the day, determined by the Engineer, when all work specified in the Contract is completed and all obligations of the Contractor under the Contract are fulfilled.
   1. Furnish all documentation required by the Contract and required by law before this date.

Replace PART 1 GENERAL, ARTICLE 1.13 EXTENDING CONTRACT TIME, Paragraph C as follows:

C. **Partial Suspension:** Suspension of work on some items as ordered by the Engineer is considered a partial suspension.
   1. Applicable only to working day or calendar day contracts.
   2. Engineer determines the time charged for each day on partial suspensions not the fault of the Contractor as the greater of:
      a. 0.15 day
      b. The quotient (rounded to hundredths) obtained by dividing the sum of the bid amount for the specific items of work not suspended by the total value of original contract amount.
   3. Not applicable to the determination of calendar days required to complete Physical Completion per Article 1.14

Replace PART 1 GENERAL, ARTICLE 1.14 FAILURE TO COMPLETE ON TIME, as follows:

1.14 FAILURE TO COMPLETE ON TIME

A. Achieve Substantial Completion within the required Contract Time. Department deducts from any money due the sum specified in the following Schedule of Liquidated Damages (Table 1) for each calendar day or working day that any work remains necessary to achieve Substantial Completion after the Substantial Completion date.

B. Achieve Physical Completion on all work (excluding Compliance with Section 13597 ATMS Integration and Section 13598S NID Integration) no later than 30 calendar days after achieving Substantial Completion. Department deducts from any money due $210.00 per day for each calendar day after the 30 days following Substantial Completion any work remains necessary to achieve Physical Completion.

C. Achieve Physical Completion on all work addressing compliance with Section 13597 ATMS Integration and Section 13598S NID Integration no later than 120 calendar days after achieving Substantial Completion.

Department deducts from any money due $2,000.00 per day for each calendar day after the 120 days following Substantial Completion any work remains necessary to achieve Physical Completion.

D. Achieve Contract Completion no later than 30 calendar days after achieving Physical Completion on all project work. Department deducts from any money due $200.00 per day for each calendar day after the 30 days following Physical Completion any obligation of the Contractor under the Contract remains unfulfilled.

Table 1 - Schedule of Liquidated Damages

Original Contract Amount		**Daily Charge**	
From more than	**To and including**	**Calendar Day Completion Date**	**Work Day**
$0	$100,000	$210	$830
100,000	500,000	450	950
500,000	1,000,000	680	1380
1,000,000	5,000,000	1270	2170
5,000,000	10,000,000	1860	2950

E. Continuation and completion of the work after the contract time expires does not waive the Department's rights under the Contract.

END OF SECTION

July 21, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 00573S

PUBLIC COORDINATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordinate with adjacent property owners and occupants.

1.2 RELATED SECTIONS

A. Section 00555: Prosecution and Progress

B. Section 00820: Legal Relations and Responsibility to Public

1.3 COORDINATING WITH ADJACENT PROPERTY OWNERS

A. Notify each adjacent property owner at least 48 hours in advance of the interruption of utility service or the interruption of access.

B. Provide all-weather access to property owners at all times, unless property owner(s) or Engineer approve otherwise.

C. Coordinate with each affected property owner or occupant regarding garbage collection. Do not interfere with regular garbage collection.

D. Cooperate with the U.S. Postal Service in the delivery of mail.

PART 2 PRODUCTS **Not Used.**

PART 3 EXECUTION **Not Used.**

END OF SECTION

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 00725M

SCOPE OF WORK

Add the following to Article 1.18 Paragraph C:

1. The Department does not accept VE proposals related to pavement section structure, strength or performance.

Delete Article 1.18 Paragraph D and replace with the following:

D. The Department rejects proposals that provide equivalent options to those already in the contract.

Delete Article 1.18 Paragraphs E – I and replace with the following:

E. The Department may reject proposals that:
   1. Contain revisions the Department is already considering or has approved for the Contract.
   2. Do not generate sufficient savings.
   3. Do not provide additional information as requested by the Department including requests for field investigation results and surveys, design computations, and field change sheet for proposed design changes.

F. If the proposal is rejected, the Contractor has no claim to additional costs or delays, including development costs, loss of anticipated profits, or increased material or labor costs.

G. The Engineer can reject all unsatisfactory work resulting from an approved proposal.
   1. Remove rejected work and reconstruct under the original contract provisions at no additional cost to Department.
   2. Reimbursement for modifications to the proposal to adjust field or other conditions is limited to the total amount of the contract bid prices.
   3. Rejection or limitation of reimbursement is not basis for any claim against the Department.

H. The Department does not consider savings generated by contingency items when it is reduced as part of a VECP, unless it can be tied to a reduction in contract time.

Add the following Article 1.20 to Part 1

1.20 PROJECT SPECIFIC SCOPE OF WORK

A. Project involves construction of ITS improvements, on City and UDOT owned traffic control infrastructure, throughout the corporate boundaries of Provo City, Utah.

Project requirements include the construction of various features at various locations throughout Provo City. These features include, but are not limited to:

- Installation of fiber optic interconnects and related appurtenances.
- Replacement of conduit sweeps to facilitate fiber optic interconnects.
- Installation / upgrade of video detection equipment.
- Replacement of traffic signal control cabinets.
- Installation of CCTV cameras.
- Installation of system detection.
- System integration services.
- Installation of roadway lighting improvements.
- Reconfiguration of existing roadway lighting improvements.
- Pavement restoration.
- Concrete flatwork repair including sidewalks.
- Concrete curb and gutter replacement.
- Landscaping and irrigation restoration and adjustment.

B. Plans and details are diagrammatic and depict traffic signal modifications and signal interconnect in schematic form only. Final routing will be based on actual field conditions adapted in the field at the time of construction to meet their intended purpose and to minimize and prevent conflicts with existing features and utilities as approved by Engineer.

C. Work includes reconstruction or replacement of any existing construction, property, or facility damaged as a result of construction activities, other than work required in the plans.

D. Exercise care and best efforts to minimize disruption to areas within and adjacent to the project site.

END OF SECTION

February 24, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 00820M

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Delete Article 1.16 and replace with the following:

1.16 INSURANCE REQUIREMENTS

A. Workers' Compensation Insurance
   1. Provide Workers' Compensation Insurance to cover full liability. As a minimum, comply with the statutory limits defined by the State of Utah.

B. General Liability Insurance
   1. Provide General Liability insurance with the following minimum limits of liability:
      a. $1,000,000 Bodily Injury and Property Damage – Each Accident
      b. $2,000,000 General Aggregate
      c. $2,000,000 Products and Complete Operations Annual Aggregate

C. Excess General Liability Insurance
   1. Provide Excess Liability Insurance with the following minimum limits:
      a. $1,000,000 Each Claim

D. Automobile Liability Insurance
   1. Provide Automobile Liability Insurance for claims arising from the ownership, maintenance, or use of motor vehicles involved in project work with the following minimum limits:
      a. $1,000,000 Combined single Limit Bodily Injury and Property Damage per Occurrence

E. Provide the following for all required liability insurance policies:
   1. Where and when applicable, name as insured, only in respect to work to be performed under this Contract, the State of Utah and all institutions, agencies, departments, authorities, and instrumentalities, and while acting within the scope of their duties, all volunteers as well as members of governing bodies, boards, commissions, and advisory committees.
   2. Coverage for the above insured is primary and not contributing.

3. Incorporate into the insurance policy this statement: “Insurance coverage is extended to include claims reported up to one year beyond the date of substantial completion of this Contract.”

F. Provide UDOT with certificates of insurance showing coverage as required above at the time the contract is executed and maintain the policy in force during the entire period of the Contract. The certificates will also state that the policies required are endorsed to give UDOT (the Engineer) not less than 30 days prior notice in the event of cancellation or change in coverage.

G. Regardless of the Contractor insurance requirements required in this section, insolvency, bankruptcy, or failure of any insurance company to pay all claims accrued does not relieve Contractor of any obligations.

H. Endorse all policies to include waivers of subrogation in favor of UDOT.

Supplemental Specification
2005 Standard Specification Book

SECTION 01282M

PAYMENT

Add the following to Part 1, Article 1.1:

D. Section 01284: Prompt Payment

Delete Article 1.14, paragraph E and replace with the following:

E. From the total value of work, the Department deducts and retains five percent until after the entire Contract has been completed in an acceptable manner, with the following exceptions:
   a. Retention for subcontracted work paid upon satisfactory completion and acceptance by the Department. Refer to Section 01284.
   b. When no less than 95 percent of the work has been completed, and with the consent of the Surety, the Engineer may prepare a semi-final estimate from which the Department retains 1½ percent of the original contract amount. The Department certifies the remainder for payment, less all previous payments.

Supplemental Specification
2005 Standard Specification Book

SECTION 01284

PROMPT PAYMENT

Add Section 01284:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section applies only to Federal-Aid Contracts.

B. Requirements applicable to Contractors, subcontractors, service providers, material suppliers,  all tier subcontractors, service providers, and suppliers.

1.2 PROGRESS PAYMENTS

A. Include in subcontract, service, or purchase agreement language agreeing to pay promptly as required by this specification.

B. Pay subcontractors for satisfactory performance of sublet work, no later than 10 working days after receipt of payment by the Department.
   1. Certify that payment has been made to all subcontractors for the work performed and paid for on the most recent Department pay estimate.
   2. Provide documentation showing Department estimate number, bid item, quantities, and dollar amounts paid to subcontractors, including payments for contract bid items that are partially sublet.

C. Pay Material Suppliers and Service Suppliers within 30 calendar days after receipt of payment for work that includes materials and or services.

D. Submit the following to the Engineer within five working days after paying subcontractor(s), service provider(s), or material supplier(s):
   1. A certified statement in the form of an affidavit on letterhead, including the signature of a legally responsible official, certifying:

a. That payment of the total dollar amount paid to each entity has been made in accordance with all requirements of the contract and special provisions, and

b. That the dollar amount paid is the total amount due for work or services performed or materials purchased through the most current pay estimate.

1.3 RETAINED MONEY

A. Include in subcontract, service, or purchase agreement language agreeing to pay retained money for subcontract, service, or purchase agreement upon satisfactory completion of the work and acceptance by the Department.

B. For purposes of this Section, a subcontractor's work is considered satisfactorily completed when all work included in the subcontract is complete, in accordance with all requirements of the contract, and documented as required by the recipient. When a recipient has partially accepted a portion of the work, that portion of work performed is considered to be satisfactorily completed.

C. Require written notification from the subcontractor when all subcontract items are complete.
   1. Notify the Engineer in writing within two working days after written notification from the subcontractor.
   2. The Engineer schedules and coordinates an inspection for acceptance of the work within three working days.
   3. Receive notification from the Department in writing when the work is considered to be satisfactorily complete and accepted. Acceptance of the work includes all requirements of the contract and agreement on pay quantities.
   4. Upon acceptance of the work, the Department releases an amount equal to the subcontractor's retainage. Submit to the Engineer a certified statement:
      a. In the form of an affidavit on letterhead, including the signature of a legally responsible official, and the signature of a legally responsible official for the subcontractor, certifying that the total amount due is the total retention.

D. Pay retained money owed to the subcontractor for satisfactory completion of the accepted work no later than 30 calendar days after receipt of payment from the Department.

E. Submit to the Engineer within five workdays after making payment a certified statement:
   1. In the form of an affidavit on letterhead, including the signature of a legally responsible official, certifying that the total amount paid is the total amount of retained money paid.

F. A determination of satisfactory completion and payment of retained money does not relieve any contractual obligation.

1.4 DELAY OF PAYMENT

A. Delay payment only for cause, with prior written notice to all parties, to include the Department.

B. Provide subcontractor 10 working days from date of written notification to correct deficiencies.
   1. Release payment upon receipt of documentation demonstrating correction of deficiencies within 10 working days.

C. Engineer may withhold dollar amount of delayed payment from future estimates.

D. Include in subcontract, service, and purchase agreements, language providing for the use of appropriate alternative dispute resolution mechanisms to resolve time of payment disputes.

E. Department may hold disputed funds in escrow until the dispute is resolved.

1.5 LIQUIDATED DAMAGES

A. Upon determination by the Department of failure to make prompt payment the Engineer will provide written notification to the Contractor. Resolve the failure and make prompt payment within three working days.

B. Failure to resolve prompt payment results in the assessment of $250 per each working day, per violation, commencing from the date of the written notification until proof of payment is received.

C. Proof of payment is defined as providing confirmation from the subcontractor that payment has been received.

D. Department considers the failure to make prompt payment an indication of a lack of financial fitness. The following additional measures may be imposed as necessary:
   1. Forfeit the privilege of bidding on Department projects until payment covered by this Section is made.
   2. Forfeit the privilege of having a subcontract, supply or purchase agreement approved to perform work or supply materials on Department projects until payment covered by this Section is made.

E. Department employs other mechanisms, consistent with this Section and applicable state and local law, so payment is fully and promptly made.

1.6 CONTRACTOR INCENTIVE ENTITLEMENT

A. Two hundred fifty dollars will be paid to Prime Contractor for each subcontractor provided the following criteria is met:
   1. Worked on the project.
   2. All prompt payment statements submitted to the project office within five working days after payment to subcontractors.
   3. Department received no valid complaints regarding prompt payment.
   4. Payment within 30 days after project has reached physical completion.

PART 2 PRODUCTS **Not used**

PART 3 EXECUTION **Not used**

END SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 01721S

SURVEY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Schedule, coordinate, and provide all construction surveying, staking, measurement and calculations (including measurement and calculation of quantities for contract pay items measured or paid for by area or volume) essential to complete the project and properly control the entire work.

B. Directed surveying as requested by the Engineer.

1.2 RELATED SECTIONS

A. Section 02765: Pavement Marking Paint

1.3 MEASUREMENT PROCEDURES

A. Directed Survey: If extra survey work is needed, a 1-Person or 2-Person Crew measured by the hour authorized. Department makes no additional payment for travel time to and from the project.

1.4 PAYMENT PROCEDURES

A. If contract does not include separate pay item for survey, include the costs in all items of work that require survey. Failure to comply with any portion of this specification may result in withholding up to 25 percent of contract payments until the deficiencies are corrected.

B. If needed and approved, directed survey work paid for in the accepted quantities at the following rates:

2 person survey crew	$130.00 per hour
1 person RTK GPS survey crew	$ 90.00 per hour
1 person computation and /or CAD	$ 65.00 per hour

C. The number of hours required for computations and/or drafting in total cannot exceed 33 percent of actual survey hours, established on a percent basis prior to directed survey work starts.

1.5 SUBMITTALS

A. The Department requires that a Professional Engineer or Professional Land Surveyor registered in the State of Utah sign and seal all submittals.

B. Re-submittals may be required depending on completeness and correctness of the work.

C. Record keeping: Keep all field notes, diaries, and books according to standard surveying practice.
   1. Loose leaf books not acceptable.
   2. Make available at any time all survey records including field notebooks and forms used for the work to the Engineer upon verbal or written request.

D. Submit electronic files, plots and calculations of appropriate contract pay item quantities to the Engineer for review and approval, a minimum of 3 working days prior to the pre-determined estimate cut-off date.

E. After project completion, return to the Engineer all surveying and design data and provide a red-lined hard copy plan set showing as-constructed features denoting changes from the original design.

1.6 QUALITY ASSURANCE

A. Contractor is responsible for survey and control of the work, and for correcting Contractor errors, whether the errors are discovered during the actual survey work or in subsequent phases of the project. Bear any cost overruns resulting from Contractor errors.

B. Perform all work in accordance with the plans and specifications and standard Engineering and Surveying practices under the responsible charge of a Professional Engineer or Professional Land Surveyor duly and properly registered in Utah.

C. The Engineer may spot check the work for accuracy and may reject unacceptable portions of work. Resurvey rejected work and correct work that is not within the specified tolerances at no additional expense to the Department.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Furnish tools, supplies, and stakes suitable for use in highway survey work.

B. Furnish stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings.

C. Furnish survey instruments and supporting equipment capable of achieving the specified tolerances. Calibrate survey equipment for accuracy prior to beginning survey work and as required.

PART 3 EXECUTION

3.1 PREPARATION

A. Discuss and coordinate the following with the Engineer before survey work begins:
1. Required submittals
2. Survey and staking methods
3. Stake markings
4. Referencing
5. Any other procedures and control necessary for the work
6. Documentation procedures

B. Establish construction survey points, elevations and grades as necessary to control layout and complete the work. Verify all control surveying and staking meets specified tolerances for prior to beginning work.

C. Calculate all grades, elevations, offsets and alignment data necessary for staking and/or setting items of work. Obtain approval from the Engineer for alternate methods of establishing grade control with wire lines, computer or laser controlled grading or other suitable methods.

D. Provide appropriate traffic control for all survey activities.

E. The Department furnishes:
1. Electronic project data, if any, and subject to the following disclaimer and Contractor acceptance to digital data release indemnification conditions.

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CONTRACT PROVISION DISCLAIMER

RELEASE OF DATA: Subject to the conditions herein, Contractor may obtain an electronic copy of the Data Points prepared by UDOT. UDOT provides data points in Microstation CAD file format only. Contractor assumes all responsibility for translation into other formats or incompatible versions. This data does not include the commercial software needed to read the points. In order to obtain an electronic copy, Contractor makes a written request to the Engineer. Contractor agrees and understands that the data points are prepared by UDOT for its own purposes and not for the benefit of private individuals or businesses. As a precondition to release, Contractor waives any and all claims that may result from the use of or reliance upon the data points. Contractor further indemnifies UDOT, Provo City, and their agents in the preparation of this data; and holds all of these parties harmless for any damages, costs, attorneys' fees, or other liabilities that might be incurred as a result of the Contractor's, or the Contractor's agents use and reliance on the aforementioned data for any purpose other than the preparation of as constructed drawings for re-submittal.

3.2 DIRECTED SURVEY

A. Conduct directed surveying if requested by the Engineer.
   1. Includes work needed for changes and extra work. Provide all labor, materials, and equipment including global positioning satellite equipment.
   2. Obtain prior written authorization from the Engineer documenting the affected work and requirements before performing work under these items.

3.3 COMPUTATIONS AND PLOTS

A. Use cross-sections to calculate volume measurements.

B. Engineer may approve alternate methods of calculating quantities.

3.4 STAKE MAINTENANCE AND MARKING

A. Maintain ALL staking necessary for the work until the construction has been completed and accepted by the Engineer.
   1. Legibly mark all survey stakes referenced to their respective control line.
   2. Renew illegible stakes at no additional cost to the Department.

3.5 CONTROL POINTS AND SURVEY TOLERANCES

A. Establish horizontal and vertical control deemed necessary to complete construction staking activities.

B. Survey and establish control within the following tolerances:

Description	Horizontal	Vertical
	Decimals of a foot	
Control points	± 0.01	± 0.01
Curb and gutter	± 0.02	± 0.02
Signals and electrical	± 0.05	± 0.02
Striping	± 0.08	-----
Paving reference line	± 0.04	± 0.01

Coordinate the survey tolerances of any items not listed above with the Engineer. Tolerances given above are subordinate to any tolerances listed in other specifications.

C. Furnish reference stakes for setting items for work.
   1. Maintain the reference stakes for the duration of the project until the Engineer approves removal.
   2. Include all reference point information on the reference stakes.

D. The following Advanced Traffic Management System (ATMS) As-Built requirements apply to all ATMS device installations, that include but are not limited to Ramp Meters, Closed Circuit Television (CCTV), Variable Message Sign (VMS), Roadway Weather Information System - Environmental Sensor Station (RWIS-ESS), Weigh In Motion (WIM), Non-Intrusive Detectors and Fiber Optic Communication Systems.
   1. Department:
      a. Provide project design files to Contractor in MicroStation format.
   2. Contractor:
      a. Carefully document all changes and updates all files to accurately represent the system as-built conditions.
      b. Plot three sets of the updated files on 11-inch x 17-inch bond paper and submit the plots to the Engineer for review and approval.
   3. As-built drawings will not be considered complete until the Engineer has given formal approval of the plots and design files.
   4. Include the following in as-built drawings:
      a. Site plans with distances.
      b. Final cabinet configuration, including wiring schematic.
      c. Pin-outs for any custom connectors.
      d. Laminated copy of the detector layout for the site, consisting of site map and including detector numbering, locations, and input file designation.

e. GPS coordinates for all junction boxes, conduit runs (250 foot intervals), and ATMS devices. Include latitude, longitude, and elevation in WGS 84 format to nine decimal place precision (XXX.XXXXXXX) in coordinates.

3.6 CURB AND GUTTER

A. Set curb and gutter staking at 25 ft intervals on tangent and 10 ft intervals on curve radii. Set line and grade for curb and gutter within 0.02 ft. of the proposed or established grade line.

3.7 EXISTING SURVEY MONUMENTS

A. Under the direction of a surveyor licensed in the State of Utah, locate and reference all private and public land survey monuments that may be destroyed by project construction activities prior to disturbing those existing monuments.

B. Complete referencing and reestablishing those existing monuments at no cost to the Department and before project completion.

C. In some counties the county surveyor references and reestablishes the monuments.
   1. Notify the county surveyor at least 30 days prior to the destruction of any monument.
   2. Coordinate the reestablishment of section corner and quarter corner monuments with the county surveyor.
   3. Submit drawings and notes showing references to section corners and quarter corners to the Engineer.

D. If a monument is found during construction but is not shown on the contract plans and must be reset, the Department pays for the additional work under the Directed Survey item.

3.8 PAVEMENT MARKING

A. Layout all temporary and permanent pavement markings per Section 02765.

3.9 CLEANUP

A. Remove and dispose of all flagging, lath, stakes and other staking material after the project is complete.
   1. Place references for traffic striping a minimum of 150 feet apart on tangents and a minimum of 50 feet on curves.

3.10 UTILITIES

A. As part of cooperating with the utility companies, stake control lines as needed so their facilities can be relocated to their proper final position. Also, stake crossings or potential points of conflict between facilities to give proper horizontal and vertical control for the relocation. Schedule this survey work with the utility companies to minimize delays and disruption of survey stakes. Replace all disturbed stakes as necessary to facilitate the relocations. The Contractor is responsible for costs incurred to relocate any utility more than once due to inaccurate or incomplete staking.

END OF SECTION

Aug 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 02583S

PARAPET CONDUIT REPAIR

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Modifications to existing parapet wall to address differential settlement induced stress and potential failure of conduit expansion joint.

1.2 RELATED SECTIONS

A. Section 03055: Portland Cement Concrete

B. Section 03211: Reinforcing Steel and Welded Wire

C. Section 03310: Structural Concrete

D. Section 03392: Penetrating Concrete Sealer

1.3 REFERENCES

A. AASHTO M 213: Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)

PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement Concrete, Class AA(AE). Refer to Section 03055.

B. Cement: Refer to Section 03055.

C. Reinforcing Steel (Coated): Refer to Section 03211.

D. Surface Sealing Material (penetrating type): Refer to Section 03392.
   1. Selected from the Accepted Products Listing available at Research Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.

E. Preformed Joint Filler: As specified. AASHTO M 213.

F. Anchoring Epoxy:
   1. Type I.
   2. Class rating consistent with the application temperature.
   3. Refer to the Accepted Products Listing. Listing available at Research Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.
   4. AASHTO M 235.

PART 3 EXECUTION

3.1 PREPARATION

A. Locate existing electric conduit, protect from damage.

3.2 PARAPET WALL CONCRETE REMOVAL

A. Prevent debris from falling into pedestrian areas, traffic areas or railroad tracks.

B. For parapet modification to meet standards:

   1. Sawcut limits of repair a minimum of 1”deep prior to beginning removal of the concrete.

   2. Remove the existing parapet concrete. Prevent damage to conduit, expansion joint, approach slab, and deck surface.

   3. Remove loose and spalled concrete. Sandblast the removal areas.

3.3 REINFORCING STEEL

A. Existing Reinforcing Steel
   1. Refer to the standard drawings for specific directions.
   2. Thoroughly clean by sandblasting remaining steel of all corrosion and adhering materials.

B. New Reinforcing Steel:
   1. For parapet modifications: Use epoxy resin adhesive to attach rebar as indicated on the plans. AASHTO M 235.

2. Place new coated reinforcing steel after sandblasting operations are complete.

3.4 PLACE CONCRETE

A. Refer to Section 03055 and Section 03310.

B. Clean concrete and steel surfaces. Dampen existing concrete before placing new concrete.

3.5 FORMS

A. Clean forms thoroughly.

B. Coat forms with an approved release agent from the Accepted Products Listing available at Research Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.

C. Use a release agent guaranteed in writing by the manufacturer not to stain concrete or impair bonding properties of any concrete protective surface coating.

3.6 FINISHING

A. Refer to Section 03310.

3.7 COATING CONCRETE SURFACES

A. Allow concrete to cure properly.

B. Sandblast the top and traffic face of the parapet of all curing compound.

C. Coat all sandblasted surfaces with the penetrating concrete sealer. Follow the manufacturer's recommended procedure.

3.8 STAINING

A. When any concrete surface of the structural members become stained, provide a treatment to restore to a uniform color.

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 02742S

PROJECT SPECIFIC SURFACING REQUIREMENTS

Add Section 02742:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Required PG Asphalt or emulsion.

B. Number of gyrations to use for Superpave Mix Design.

PART 2 PRODUCTS

2.1 MIXES

A. Hot Mix Asphalt (HMA): (Refer to bid item for size)

1. PG _64-34_____ Asphalt.

2. $N_{initial}$ __8_____ N_{design}__100_____ N_{final}__160_____

PART 3 EXECUTION **Not used**

END OF SECTION

Supplemental Specification
2005 Standard Specification Book

SECTION 02745

ASPHALT MATERIAL

Delete Section 02745 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asphalt materials

1.2 PAYMENT PROCEDURES

A. Price adjustments for asphalt cement and liquid asphalt (chip-seal emulsions and/or cut-backs):
   1. Standard department procedures governs price adjustments made where asphalt material does not conform to the specifications
      a. If the price adjustment exceeds 30 percent, the Engineer may order the removal of any or all the defective asphalt material.
      b. The pay factor for such material is 0.50 when allowed to remain in place.

B. Price adjustments for Performance Graded Asphalt Binder (PGAB):
   1. Standard department PGAB management plan governs price reductions or removal of material where the binder does not conform to the specifications.

1.3 REFERENCES

A. AASHTO M 81: Cut-Back Asphalt (Rapid-Curing Type)

B. AASHTO M 82: Cut-Back Asphalt (Medium-Curing Type)

C. AASHTO M 140: Emulsified Asphalt

D. AASHTO M 208: Cationic Emulsified Asphalt

E. AASHTO M 226: Viscosity Graded Asphalt Cement

F. AASHTO M 320: Performance Graded Asphalt Cement

G. AASHTO R 28: Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)

H. AASHTO T 44: Solubility of Bituminous Materials

I. AASHTO T 48: Flash and Fire Points by Cleveland Open Cup

J. ASHTO T 49: Penetration of Bituminous Materials

K. AASHTO T 50: Float Test for Bituminous Materials

L. AASHTO T 51: Ductility of Bituminous Materials

M. AASHTO T 59: Testing Emulsified Asphalt

N. AASHTO T 201: Kinematic Viscosity of Asphalts

O. AASHTO T 228: Specific Gravity of Semi-Solid Bituminous Materials

P. AASHTO T 240: Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)

Q. AASHTO T 300: Force Ductility of Bituminous Materials

R. AASHTO T 301: Elastic Recovery Test of Bituminous Materials by Means of a Ductilometer

S. AASHTO T 313: Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)

T. AASHTO T 314: Determining the Fracture Properties of Asphalt Binder in Direct Tension

U. AASHTO T 315: Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

V. AASHTO T 316: Viscosity Determination of Asphalt Binder Using Rotational Viscometer

W. ASTM D 92: Flash and Fire Points by Cleveland Open Cup

X. ASTM D 1190: Concrete Joint Sealer, Hot-Applied Elastic Type

Y: ASTM D 2006: Method of Test for Characteristic Groups in Rubber Extender and Processing Oils by the Precipitation Method.

Z. ASTM D 2007: Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method

AA. ASTM D 2026: Cutback Asphalt (Slow-Curing Type)

BB. ASTM D 3405: Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements

CC. ASTM D 4402: Viscosity Determinations of Unfilled Asphalts Using the Brookfield Thermosel Apparatus

DD. ASTM D 5329: Sealants and Fillers, Hot-Applied, For Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements

EE. ASTM D 5801: Toughness and Tenacity of Bituminous Materials

FF. California Test Methods

GG. UDOT Materials Manual of Instruction

HH. UDOT Minimum Sampling and Testing Guide

1.4 SUBMITTALS

A. For each shipment of material, supply a vendor-prepared bill of lading showing the following information:
   1. Type and grade of material
   2. Type and amount of additives, used, if applicable
   3. Destination
   4. Consignee's name
   5. Date of Shipment
   6. Railroad car or truck identification
   7. Project number
   8. Loading temperature
   9. Net weight in tons (or net gallons corrected to 60 degrees F, when requested)
   10. Specific gravity
   11. Bill of lading number
   12. Manufacturer of asphalt material

1.5 DELIVERY, STORAGE, AND HANDLING

A. Each shipment of asphalt material must:
   1. Be uniform in appearance and consistency.
   2. Show no foaming when heated to the specified loading temperature.

B. Do not supply shipments contaminated with other asphalt types or grades than those specified.

1.6 GRADE OF MATERIAL

A. The Engineer determines the grade of material to be used based on the supply source designated by the Contractor when the bid proposal lists more than one grade of asphalt material.

PART 2 PRODUCTS

2.1 PERFORMANCE GRADED ASPHALT BINDER (PGAB)

A. Supply PGABs under the Approved Supplier Certification (ASC) System. Refer to the UDOT Minimum Sampling and Testing Guide, Section 509, Asphalt Binder Management Plan.

B. As specified in AASHTO M 320 for all PGABs having algebraic differences less than 92 degrees between the high and low design temperatures.

C. As specified in Tables 1, 2, 3, 4, 5, 6, 7, and 8 for all PGABs having algebraic differences equal to or greater than 92 degrees between the high and low design temperatures.

Table 1

PG58-34		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@58°C, G*, kPa	1.30 Min.
	@58°C, phase angle, degrees	74.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@58°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	65 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@16°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-24°C, S, MPa	300 Max.
	@-24°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-24°C, Failure Strain, %	1.5 Min.
	@-24°C, Failure Stress (b), MPa	4.0 Min.

(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…

(b) No allowances will be given for passing at a colder grade

Table 2

PG64-28		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@64°C, G*, kPa	1.30 Min.
	@64°C, phase angle, degrees	74.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@64°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	65 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@ 22°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-18°C, S, MPa	300 Max.
	@-18°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-18°C, Failure Strain, %	1.5 Min.
	@-18°C, FailureStress (b), Mpa	4.0 Min.

(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…

(b) No allowances will be given for passing at a colder grade

Table 3

PG64-34		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@64°C, G*, kPa	1.30 Min.
	@64°C, phase angle, degrees	71.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T-240		
Dynamic Shear Rheometer, AASHTO T 315	@64°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	70 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@19°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-24°C, S, MPa	300 Max.
	@-24°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-24°C, Failure Strain, %	1.5 Min.
	@-24°C, FailureStress (b), MPa	4.0 Min.
(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…		
(b) No allowances will be given for passing at a colder grade		

Table 4

PG70-22		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*, kPa	1.30 Min.
	@70°C, phase angle, degrees	74.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	65 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@28°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-12°C, S, MPa	300 Max.
	@-12°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-12°C, Failure Strain, %	1.5 Min.
	@-12°C, FailureStress (b), MPa	4.0 Min.
(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…		
(b) No allowances will be given for passing at a colder grade		

Table 5

PG70-28		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*, kPa	1.30 Min.
	@70°C, phase angle, degrees	71.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	70 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@25°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-18°C, S, MPa	300 Max.
	@-18°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-18°C, Failure Strain, %	1.5 Min.
	@-18°C, FailureStress (b), MPa	4.0 Min.
(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…		
(b) No allowances will be given for passing at a colder grade		

Table 6

PG70-34		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*, kPa	1.30 Min.
	@70°C, phase angle, degrees	71.0 Max.
Rotational Viscometer, AASHTO T 316	@135 °C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@70°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	75 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@22°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-24°C, S, MPa	300 Max.
	@-24°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-24°C, Failure Strain, %	1.5 Min.
	@-24°C, FailureStress (b), MPa	4.0 Min.
(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…		
(b) No allowances will be given for passing at a colder grade		

Table 7

PG76-22		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@76°C, G*, kPa	1.30 Min.
	@76°C, phase angle, degrees	71.0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@76°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	70 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@ 31°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-12°C, S, MPa	300 Max.
	@-12°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-12°C, Failure Strain, %	1.5 Min.
	@-12°C, FailureStress (b), MPa	4.0 Min.

(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…
(b) No allowances will be given for passing at a colder grade

Table 8

PG76-28		
Original Binder		
Dynamic Shear Rheometer, AASHTO T 315	@76°C, G*, kPa	1.30 Min.
	@76°C, phase angle, degrees	71. 0 Max.
Rotational Viscometer, AASHTO T 316	@135°C, Pa.s	3 Max.
Flash Point, AASHTO T 48	°C	260 Min.
RTFO Residue, AASHTO T 240		
Dynamic Shear Rheometer, AASHTO T 315	@76°C, G*/sinδ, kPa	2.20 Min.
Elastic Recovery, AASHTO T 301 mod (a)	%	75 Min.
PAV Residue, 20 hours, 2.10 Mpa, 100 °C, AASHTO R 28		
Dynamic Shear Rheometer, AASHTO T 315	@28°C, kPa	5000 Max.
Bending Beam Rheometer, AASHTO T 313	@-18°C, S, MPa	300 Max.
	@-18°C, m-value	0.300 Min.
Direct Tension Test, AASHTO T 314	@-18°C, Failure Strain, %	1.5 Min.
	@-18°C, FailureStress (b), MPa	4.0 Min.

(a) Modify paragraph 4.5 as follows: After 20 cm has been reached, stop the ductilometer and within 2 seconds, sever the specimen at its center with a pair of scissor…
(b) No allowances will be given for passing at a colder grade

2.2 ASPHALTIC CEMENT, LIQUID ASPHALTS, REJUVENATING AGENTS

A. As specified in AASHTO M 226, Table 2 with the following modifications:
   1. Delete and replace ductility at 77°F (25°C) with ductility at 39.2°F (4°C) with values as detailed below.

AC - 2.5	AC - 5	AC - 10	AC - 20
50+	25+	15+	5+

B. As specified for cationic and anionic emulsified asphalt.
   1. All standard Slow Setting (SS, CSS), Medium Setting (MS, CMS), and Rapid Setting (RS, CRS) grades; inclusive of all High-Float designations (HF).
   2. Supply under the Approved Supplier Certification System (ASC).
   3. Meet AASHTO M 208 and M 140.

C. Conform to the requirements of one of these tables:
   1. Table 9: Cationic Rapid Setting Emulsified Polymerized Asphalt (CRS-2P)
   2. Table 10: Latex Modified Cationic Rapid Setting Emulsified Asphalt (LMCRS-2)
   3. Table 11: Cationic Medium Setting Emulsified Asphalt (CMS-2S)
   4. Table 12: High Float Medium Setting Emulsified Asphalt (HFMS-2)
   5. Table 13: High Float Medium Setting Emulsified Polymerized Asphalt (HFMS-2P)
   6. Table 14: High Float Medium Setting Emulsified Polymerized Asphalt (HFMS-2SP)
   7. Table 15: High Float Rapid Setting Emulsified Polymerized Asphalt (HFRS-2P).
   8. Table 16: Setting Cationic Rapid Emulsified Asphalt (CRS-2A, B)

D. Curing cut-back asphalt:
   1. As specified for slow curing (SC) in ASTM D 2026.
   2. As specified for medium curing (MC) in AASHTO M 82.
   3. As specified for rapid curing (RC) in AASHTO M 81.

E. Conform to requirements for Emulsified Asphalt Pavement Rejuvenating Agent:
   1. Table 17: Type A
   2. Table 18: Type B
   3. Table 19: Type B Modified
   4. Table 20: Type C
   5. Table 21: Type D

Table 9

Cationic Rapid Setting Emulsified Polymerized Asphalt (CRS-2P)			
Tests	**AASHTO Test Method**	**Min.**	**Max.**
Emulsion			
Viscosity , SF, 140°F (60°C), s (Project-site Acceptance/Rejection Limits)	T59	100	400
Settlement (a) 5 days, percent	T 59		5
Storage Stability Test (b) 1 d, 24 h, percent	T 59		
Demulsibility (c) 35 ml, 0.8% sodium dioctyl Sulfosucinate, percent	T 59	40	
Particle Charge Test	T 59	Positive	
Sieve Test, percent	T 59		0.10
Distillation			
Oil distillate, by volume of emulsion, percent			0
Residue (d), percent		68	
Residue from Distillation Test			
Penetration, 77°F(25°C), 100 g, 5 s, dmm	T 49	80	150
Ductility, 39.2°F(4°C), 5 cm/min, cm Toughness, lb-in Tenacity, lb-in	T 51 ASTM D 5801 ASTM D 5801	35 75 50	
Solubility in trichloroethylene, percent	T 44	97.5	

(a) The test requirement for settlement may be waived when the emulsified asphalt is used in less than a five-day time; or the purchaser may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than 5 days.

(b) The 24-hour (1-day) storage stability test may be used instead of the five-day settlement test.

(c) The demulsibility test is made within 30 days from date of shipment.

(d) Distillation is determined by AASHTO T 59, with modifications to include a 350 ± 5°F (177±3°C) maximum temperature to be held for 15 minutes.

Modify the asphalt cement prior to emulsification.

Table 10

Latex Modified Cationic Rapid Setting Emulsified Asphalt (LMCRS-2)			
Tests	**AASHTO Test Method**	**Min.**	**Max.**
Emulsion			
Viscosity, SF, 122°F (50°C), s– (Project Site Acceptance/Rejection Limits)	T59	140	400
Settlement (a) 5 days, percent	T 59		5
Storage Stability Test (b) 1 d, 24 h, percent	T 59		1
Demulsibility (c) 35 ml, 0.8% sodium dioctyl Sulfosucinate, percent	T 59	40	
Particle Charge Test	T 59	Positive	
Sieve Test, percent	T 59		0.3
Distillation			
Oil distillate, by volume of emulsion, percent			0
Residue (d), percent		65	
Residue from Distillation Test			
Penetration, 77°F (25°C), 100 g, 5 s, dmm	T 49	40	200
Torsional Recovery (e)		18	

(a) The test requirement for settlement may be waived when the emulsified asphalt is used in less than a five-day time; or the purchaser may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than 5 days.

(b) May use the 24-hour (1-day) storage stability test instead of the five-day settlement test.

(c) Make the demulsibility test within 30 days from date of shipment.

(d) Determine distillation by AASHTO T 59,with modifications to include a 350 ± 5°F (177±3°C) maximum temperature to be held for 15 minutes.

(e) CA 332 (California Test Method)

Co-mill latex and asphalt during emulsification

Table 11

Cationic Medium Setting Emulsified Asphalt (CMS-2S)		
Tests	**AASHTO Test Method**	**Specification**
Emulsion		
Viscosity, SF, 122°F (50°C), s	T 59	50 - 450
Percent residue	T 59	60 min
Storage Stability Test, 1d, 24h, percent	T 59	1 max
Sieve, percent	T 59	0.10 max
Particle charge	T 59	Positive
Oil Distillate, percent by volume of emulsion	T 59	5-15
Residue		
Penetration, 77°F (25°C), 100g, 5 sec, dmm	T 59	100-250
Solubility, percent	T 59	97.5 min.

Table 12

High Float Medium Setting Emulsified Asphalt (HFMS-2)			
Tests	**AASHTO Test Method**	**Min.**	**Max.**
Emulsion			
Viscosity, SF, 122°F (50°C), s (Project Site Acceptance/Rejection Limits	T59	70	300
Storage Stability Test, 1d, 24 h, percent	T59		1.0
Sieve Test , percent	T59		0.1
Distillation	T59		
Oil Distillate, by volume of emulsion, percent	T59	NA	NA
Residue, percent	T59	65	
Residue from Distillation Test			
Penetration, 77°F (25°C), 100g, 5 s, dmm	T49	50	200
Float Test, 140°F (60°C), s	T50	1200	
Solubility in Trichloroethylene, percent	T44	97.5	
Ductility, 77°F (25°C) 5cm/min, cm	T51	40	

Table 13

High Float Medium Setting Emulsified Polymerized Asphalt (HFMS-2P) (a)			
Tests	**AASHTO Test method**	**Min.**	**Max.**
Emulsion			
Viscosity, SF, 122°F (50°C), s (Project Site Acceptance/Rejection Limits)	T 59	100	450
Storage Stability Test, 1 d, 24 h, percent	T 59		1.0
Sieve Test, percent	T 59		0.1
Distillation			
Oil distillate, by volume of emulsion, percent	T 59		7
Residue (b), percent	T 59	65	
Residue from Distillation Test			
Penetration, 77°F (25°C), 100 g, 5 s, dmm	T 49	70	300
Float Test, 140°F (60°C), s	T 50	1200	300
Solubility in trichloroethylene, percent	T 44	97.5	
Elastic Recovery, 77°F (25°C), percent	T 301	50	

(a) Supply an HFMS-2P (anionic, polymerized, high-float) as an emulsified blend of polymerized asphalt cement, water, and emulsifiers. Polymerize the asphalt cement with a minimum of 3.0% polymer by weight of the asphalt cement prior to emulsification. After standing undisturbed for a minimum of 24 hours, the emulsion shall be smooth and homogeneous throughout with no white, milky separation, pumpable, and suitable for application through a distributor.

(b) Determine the distillation by AASHTO T 59, with modifications to include a 350± 5°F (177±3°C) maximum temperature to be held for 15 minutes.

Table 14

High Float Medium Setting Emulsified Polymerized Asphalt (HFMS-2SP) (a)			
Tests	**AASHTO Test method**	**Min.**	**Max.**
Emulsion			
Viscosity, SF, 122°F (50°C), s (Project Site Acceptance/Rejection Limits)	T 59	50	450
Storage Stability Test, 1 d, 24 h, percent	T 59		1
Sieve Test, percent	T 59		0.1
Distillation			
Oil distillate, by volume of emulsion, percent	T 59		7
Residue (b), percent	T 59	65	
Residue from Distillation Test			
Penetration, 77°F (25°C), 100 g, 5 s, dmm	T 49	150	300(c)
Float Test, 140°F (60°C), s	T 50	1200	
Solubility in trichloroethylene, percent	T 44	97.5	
Elastic Recovery(d), 77°F (25°C), percent	T 301	50	

(a) Supply an HFMS-2SP (anionic, polymerized, high-float) as an emulsified blend of polymerized asphalt cement, water, and emulsifiers. Polymerize the asphalt cement with a minimum of 3.0% polymer by weight of the asphalt cement prior to emulsification. After standing undisturbed for a minimum of 24 hours, the emulsion shall be smooth and homogeneous throughout with no white, milky separation, pumpable, and suitable for application through a distributor.

(b) Determine the distillation by AASHTO T 59, with modifications to include a 350± 5°F (177±3°C) maximum temperature to be held for 15 minutes.

(c) When approved by the Engineer, Emulsified Asphalt (HFMS-2SP) with a residual penetration greater than 300 dmm may be used with Cold Bituminous Pavement (Recycle) to address problems with cool weather or extremely aged existing pavement.

(d) Report only when penetration is greater than 300 dmm.

Table 15

High Float Rapid Setting Emulsified Polymerized Asphalt (HFRS-2P) (a)			
Tests	**AASHTO Test method**	**Min.**	**Max.**
Emulsion			
Viscosity, SF @ 122°F (50°C), s (Project Site Acceptance/Rejection Limits)	T 59	50	450
Storage Stability Test (b) 1 d, 24 h, percent	T 59		1
Demulsibility 0.02 N Ca Cl_2, percent	T 59	40	
Sieve Test, percent	T 59		0.1
Distillation			
Oil distillate, by volume of emulsion, percent	T 59		3
Residue (b), percent	T 59	65	
Residue from Distillation Test			
Penetration, 77°F (25°C), 100 g, 5 s, dmm	T 49	70	150
Float Test, 140°F (60°C), s	T 50	1200	
Solubility in trichloroethylene, percent	T 44	97.5	
Elastic Recovery, 77°F (25°C), percent	T 301	58	

(a) Supply an HFMS-2SP (anionic, polymerized, high-float) as an emulsified blend of polymerized asphalt cement, water, and emulsifiers. Polymerize the asphalt cement with a minimum of 3.0% polymer by weight of the asphalt cement prior to emulsification. After standing undisturbed for a minimum of 24 hours, the emulsion shall be smooth and homogeneous throughout with no white, milky separation, pumpable, and suitable for application through a distributor.

(b) Determine the distillation by AASHTO T 59, with modifications to include a 350 ± 5°F (177±3°C) maximum temperature to be held for 15 minutes.

Table 16

Cationic Rapid Setting Emulsified Asphalt (CRS-2A,B)			
Tests	**AASHTO Test Method**	**Min**	**Max**
Emulsion			
Viscosity, SF, 122°F (50°C), s (Project Site Rejection/Acceptance Limits)	T 59	140	400
Storage stability test, 24 h, percent	T 59		1
Demulsibility, 35 mL 0.8 percent Sodium Dioctyl Sulfosucinate, percent	T 59	40	
Particle charge test	T 59	Positive	
Sieve test, percent	T 59		0.10
Distillation			
Oil distillate, by volume of emulsion, percent	T 59		0
Residue, percent	T 59	65	
Use PG58-22 and PG64-22 as base asphalt cement for CRS-2A, B, respectively. Specification for high temperature performance: original and RTFO G*/sinδ within 3°C of grade.			

Table 17

Emulsified Type A Asphalt Pavement Rejuvenating Agent Concentrate		
Property	**Test Method**	**Limits**
Viscosity, SF, 77°F (25°C), s	AASHTO T 59	15 Min 40 Max
Residue , percent W (a)	AASHTO T 59	60 Min. 65 Max.
Miscibility Test (b)	AASHTO T-59	No Coagulation
Sieve Test, percent W (c)	AASHTO T 59	0.20 Max.
5-day Settlement, percent W	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
Light Transmittance , %	UDOT MOI 8-973	30 Max.
Cement Mixing	AASHTO T-59	2 Max.
Residue from Distillation (a)		
Viscosity, 140 ºF (60°C), mm^2/s	ASTM D 4402	150 - 300
Flash Point, COC, °F (°C)	AASHTO T 48	385 Min.
Asphaltenes, percent W	ASTM D 2006-70	0.4 Min. 0.75 Max.
Maltene Distribution Ratio $(PC + A_1)/(S + A_2)$ (d)	ASTM D 2006-70	0.3 Min. 0.6 Max
Saturated Hydrocarbons, S (d)	ASTM D 2006-70	21 Min. 28 Max.
PC/S Ratio (d)	ASTM D 2006-70	1.5 Min.

(a) AASHTO T 59 , Evaporation Test, modified as follows: Heat a 50 gram sample to 300 ºF until foaming ceases, then cool immediately and calculate results.

(b) AASHTO T 59, modified as follows: use a 0.02 Normal Calcium Chloride solution in place of distilled water.

(c) AASHTO T 59, modified as follows: use distilled water in place of a two percent sodium oleate solution.

(d) Chemical composition by ASTM Method D-2006-70:
PC= Polar Compounds, A_1 = First Acidaffins
A_2 = Second Acidaffins, S = Saturated Hydrocarbons

Table 18

Emulsified Type B Asphalt Pavement Rejuvenating Agent Concentrate		
Tests	**Test Method**	**Limits**
Viscosity, SF, 77°F (25°C), s	AASHTO T 59	25-150
Residue, percent W	AASHTO T 59 (mod) (a)	62 Min.
Sieve Test, percent W	AASHTO T 59	0.10 Max.
5-day Settlement	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
Pumping Stability (b)		Pass
Residue from Distillation (a)		
Viscosity @ 140°F (60°C), mm^2/s	AASHTO T 201	2500-7500
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	98 Min.
Flash Point, COC	ASTM D 92	204°C, Min.
Asphaltenes, percent W	ASTM D 2007	15 Max.
Saturates, percent W	ASTM D 2007	30 Max.
Aromatics, percent W	ASTM D 2007	25 Min.
Polar Compounds, percent W	ASTM D 2007	25 Min.
(a) Determine the distillation by AASHTO T 59 with modifications to include a 300 ±5°F (149±3°C) maximum temperature to be held for 15 minutes.		
(b) Test pumping stability by pumping 475 ml of Type B diluted 1 part concentrate to 1 part water, at 77°F (25°C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.		
Type B: an emulsified blend of, lube oil and/or lube oil extract, and petroleum asphalt.		

Table 19

Emulsified Type B Modified Asphalt Pavement Rejuvenating Agent Concentrate		
Property	**Test Method**	**Limits**
Viscosity, SF, 77°F (25°C), s	AASHTO T 59	50-200
Residue(a), percent W	AASHTO T 59	62 Min.
Sieve Test, percent W	AASHTO T 59	0.20 Max.
5-day Settlement, percent W	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
Pumping Stability (b)		Pass
Residue from Distillation (a)		
Viscosity (c) 275°F (135°C), cP	ASTM D 4402	150 - 300
Penetration, 77°F (25°C), dmm	AASHTO T 49	180 Min.
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	98 Min.
Flash Point, COC, °F (°C)	AASHTO T 48	400(204) Min.
Asphaltenes, percent W	ASTM D 2007	20-40
Saturates, percent % W	ASTM D 2007	20 Max.
Polar Compounds, percent W	ASTM D 2007	25 Min.
Aromatics, percent W	ASTM D 2007	20 Min.
PC/S Ratio	ASTM D 2007	1.5 Min.

(a) Determine the distillation by AASHTO T 59 with modifications to include a 300±5°F (149± 3°C) maximum temperature to be held for 15 minutes.

(b) Pumping stability is tested by pumping 475 ml of Type B diluted 1 part concentrate to 1 part water, at 77°F (25°C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.

(c) Brookfield Thermocel Apparatus-LV model. ≥ 50 rpm with a #21 spindle, 7.1 g residue, at > 10 torque

As required by the Asphalt Emulsion Quality Management Plan, UDOT Minimum Sampling and Testing Guide, Section 508) the supplier certifies that the base stock contains a minimum of 15% by weight of Gilsonite Ore. Use the HCL precipitation method as a qualitative test to detect the presence of Gilsonite.

Table 20

Emulsified Type C Asphalt Pavement Rejuvenating Agent Concentrate		
Property	**Test Method**	**Limits**
Viscosity, SF, 77°F (25°C), s	AASHTO T 59	10-100
Residue (a), percent W (Type C supplied ready to use 1:1 or 2:1.	AASHTO T 59	30 Min. 1:1 40 Min. 2:1
Sieve Test, percent W (b)		0.10 Max.
5-day Settlement, percent W	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
pH (May be used if particle charge test is inconclusive)		2.0 - 7.0
Pumping Stability (c)		Pass
Tests of Residue from Distillation (a)		
Viscosity, 275°F (135°C), mm^2/s	AASHTO T 201	475-1500
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	97.5 Min.
RTFO mass loss, percent W	AASHTO T 240	2.5 Max.
Specific Gravity	AASHTO T 228	0.98 Min.
Flash Point, COC	AASHTO T 48	232 °C, Min.
Asphaltenes, percent W	ASTM D 2007	25 Min., 45 Max.
Saturates, percent W	ASTM D 2007	10 Max.
Polar Compounds, percent W	ASTM D 2007	30 Min.
Aromatics, percent W	ASTM D 2007	15 Min.

(a) Determine the distillation by AASHTO T 59 with modifications to include a 300± 5°F (149 ± 3°C) maximum temperature to be held for 15 minutes.

(b) Test method identical to AASHTO T 59 except that distilled water is used in place of 2 % sodium oleate solution.

(c) Test pumping stability by pumping 475 ml of Type diluted 1 part concentrate to 1 part water, at 77°F (25°C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.

As required by the Asphalt Emulsion Quality Management Plan, UDOT Minimum Sampling and Testing Guide, Section 508), the supplier certifies that the base stock contains a minimum of 10% by weight of Gilsonite ore. Use the HCL precipitation method as a qualitative test to detect the presence of Gilsonite.

Table 21

Emulsified Type D Asphalt Pavement Rejuvenating Agent Concentrate		
Property	**Test Method**	**Limits**
Viscosity, SF, 77°F (25°C), s	AASHTO T 59	30-90
Residue, (b) percent W	AASHTO T 59	65
Sieve Test, percent W	AASHTO T 59	0.10 Max.
pH		2.0 - 5.0
Residue from Distillation (b)		
Viscosity, 140°F (60°C), cm^2/s	AASHTO T 201	300-1200
Viscosity, 275°F (135°C), mm^2/s	AASHTO T 201	300 Min.
Modified Torsional Recovery (a) percent	CA 332 (Mod)	40 Min.
Toughness, 77°F (25°C), in-lb	ASTM D 5801	8 Min.
Tenacity, 77°F (25°C), in-lb	ASTM D 5801	5.3 Min.
Asphaltenes, percent W	ASTM D 2007	16 Max.
Saturates, percent W	ASTM D 2007	20 Max.
(a) Torsional recovery measurement to include first 30 seconds.		
(b) Determine the distillation by AASHTO T 59 with modifications to include a 300±5°F (149±3°C) maximum temperature to be held for 15 minutes.		

2.3 HOT-POUR CRACK SEALANT FOR BITUMINOUS CONCRETE

A. Combine a homogenous blend of materials to produce a sealant meeting properties and tests in Table 22.

B. Packaging and Marking: Supply sealant pre-blended, pre-reacted, and pre-packaged in lined boxes weighing no more than 30 lb.
   1. Use a dissolvable lining that will completely melt and become part of the sealant upon subsequent re-melting.
   2. Deliver the sealant in the manufacturer's original sealed container. Clearly mark each container with the manufacturer's name, trade name of sealant, batch or lot number, and recommended safe heating and application temperatures.

Table 22

Hot-Pour Bituminous Concrete Crack Sealant			
Application Properties:			
Workability:	Pour readily and penetrate 0.25 inch and wider cracks for the entire application temperature range recommended by the manufacturer.		
Curing:	No tracking caused by normal traffic after 45 minutes from application.		
Asphalt Compatibility: ASTM D 5329, Section 14.	No failure in adhesion. No formation of an oily ooze at the interface between the sealant and the bituminous concrete or softening or other harmful effects on the bituminous concrete.		
Material Handling:	Follow the manufacturer's safe heating and application temperatures.		
Test Method	**Property**	**Minimum**	**Maximum**
AASHTO T 51	Ductility, modified, 1cm/min, 39.2°F (4°C), cm	30	
UDOT method 967	Cold Temperature Flexibility	no cracks	
AASHTO T 300 (a)	Force-Ductility, lb force		4
ASTM D 5329	Flow 140°F (60°C), 5 hrs 75°angle, mm		3
ASTM D 3405 (b)	Tensile-Adhesion, modified	300%	
AASHTO T 228	Specific Gravity, 60°F (15.6°C)		1.140
ASTM D 5329	Cone Penetration, 77°F (25°C), 150 g, 5 sec., dmm		90
ASTM D 5329	Resilience, 77°F (25°C), 20 sec., percent	30	
ASTM D 4402	Viscosity, 380°F (193.3°C), SC4-27 spindle, 20 rpm, cP		2500
ASTM D 5329	Bond as per ASTM D 1190, Section 6.4		Pass
(a) Maximum of 4 lb force during the specified elongation of 30 cm @ 1 cm/min, 39.2°F (4°C).			
(b) Use ASTM D 3405, Section 6.4.1. Delete bond and substitute tensile-adhesion test in accordance to D 5329.			

PART 3 EXECUTION Not used

END OF SECTION

January 1, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 02765S

PAVEMENT MARKING PAINT

Delete Section 02765 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish Acrylic Water Based pavement marking paint meeting Federal Specification TTP-1952 D and refer to 2.2 for resin requirement.

B. Apply to hot mix asphalt or Portland cement as edge lines, center lines, broken lines, guidelines, contrast lines, symbols and other related markings.

C. Remove pavement markings.

1.2 REFERENCES

A. AASHTO M 247: Glass Beads Used in Traffic Paint

B. ASTM D 562: Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using the Stormer-Type Viscometer

C. ASTM D 2205: Selection of Tests for Traffic Paints

D. ASTM D 2743: Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography

E. ASTM D 2805: Hiding Power of Paints by Reflectometry

F. ASTM D 3723: Pigment Content of Water-Emulsion Paints

G. ASTM D 3960: Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings

H. ASTM D 4451: Pigment Content of Paints

I. ASTM D 5381: X-Ray Fluorescence (XRF) Spectroscopy of Pigments and Extenders

J. ASTM E 1347: Standard Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry

K. Federal Standards

1.3 ACCEPTANCE

A. Provide fixtures (ball valves, gate valves or other) on paint truck for the purposes of obtaining field samples.

B. Agitate the paint to allow for thorough mixing. Follow paint manufacturer's recommendation for agitation and mixing times.

C. Stop all agitation before sample is drawn.

D. All meters on the paint truck must be calibrated annually and certified for application rate verification. Calibration tolerances for meters must be +/- 0.5 pounds per gallon. Keep a clean, legible copy of calibration report with the paint truck. Certifications performed by company personnel, meter calibration companies or UDOT Equipment Certification Unit.

E. UDOT ENGINEER:
   1. Visually inspects each line to verify bead adhesion and compliance with specified line dimensions requirements.
   2. Verifies that the paint and beads are being applied within specified tolerances a minimum of once each production day.
   3. Verifies quantities used by either method:
      a. Measuring both paint and bead tanks prior to and after application.
      b. Witnessing the meter readings prior to and after application.
   4. Randomly sample each color of pavement marking paint used, minimum of one sample each per project.
      a. Use a clean one-pint metal paint can.
      b. Sample paint immediately after the paint has been completely agitated. (Stop all agitation before drawing the sample)
      c. Allow a minimum of 10 gallons to be applied prior to taking sample.
      d. Fill the sample container to within ½ inch of full.
      e. Seal the containers immediately by tightly attaching the container's lid.
      f. Submit paint samples to Central Chemistry Lab for acceptance.

g. For each sample include:
- Project Number
- Project Name
- Paint Manufacturer
- Batch Number
- Striping Company
- Color of Paint
- Est. Quantity
- Date Sampled
- Sampler's name

F. Repaint any line or symbol failing to meet bead adherence and dimensional requirements.

G. Price Reductions for Pavement Markings installed below the specified wet mil thickness are outlined in Table I.

Table I - Price Reduction for Wet Mil Thickness	
	Pay Factor
At the specified mil thickness	1.00
1-10 percent below the Specified wet mil thickness	0.75
11-15 percent below the Specified wet mil thickness	0.50
More than15 percent below the Specified wet mil thickness	Repaint Pavement Markings

H. Price reductions for pavement markings that fail to meet the requirements of Table III are outlined in Table II. When more than one of the requirements of Table III are deficient. The result with the highest price reduction governs.

Table II - Price Reductions	
	Pay Factor
At the specified requirements	1.00
Up to1 percent deficient	0.90
Up to 2 percent deficient	0.80
Up to 3 percent deficient	0.70
Up to 4 percent deficient	0.60
Up to 5 percent deficient	0.50
More than 5 percent below specified quantitative requirements	Repaint Pavement Markings

PART 2 PRODUCTS

2.1 Manufacturers

A. Select an acrylic water based pavement marking paint manufacturer, from the Accepted Products Listing (APL) maintained by the UDOT Research Division.

2.2 Paint

A. Follow Federal Standards 595B, 37875, 33538, and 11105. Meet the following requirements for Acrylic Water Based Paint as listed in Table III:

Table III - Paint Requirements

Property	White	Yellow (lead free)	Black	Test
Pigment: Percent by weight	62.0	62.0	62.0	ASTM D 3723
Total Solids: Percent by weight, minimum	77.0	77.0	77.0	ASTM D 2205
Nonvolatile vehicle: Percent by weight vehicle, minimum*	40.0	40.0	40.0	ASTM D 2205
Viscosity, KU @ 77 degrees F	80 – 95	80 - 95	80 - 95	ASTM D 562
Volatile Organic Content (VOC): lbs/gal, maximum	1.25	1.25	1.25	ASTM D 3960
Titanium Dioxide Content, lbs/gal	1.0 min	0.2 max	N/A	ASTM D 5381
Directional Reflectance : Minimum	92.0	50.0	N/A	ASTM E 1347
Dry Opacity: Minimum (5 mils wet)	0.95	0.95	N/A	ASTM D 2805

* The binder shall be 100 percent acrylic, a minimum of 40 percent, by weight, as determined by infrared analysis and other chemical analysis available to UDOT (ASTM D 2205). Consisting of either Rohm and Haas Fastrack HD- 21A or Dow DT-400NA.

B. Additional requirements:
   1. Free of lead, chromium, or other related heavy metals ASTM D 5381.
   2. ASTM D 2743, ASTM D 4451 and ASTM D 5381: Tests used to verify paint samples meet Accepted Products Listing.

2.3 GLASS SPHERE (BEADS) USED IN PAVEMENT MARKING PAINT

A. Specific Properties: Meet AASHTO M 247 with the following exceptions.
   1. Gradation:

Passing a No. 14 sieve, percent	95 - 100
Passing a No. 16 sieve, percent	80 - 95
Passing a No. 18 sieve, percent	10 - 40
Passing a No. 20 sieve, percent	0 - 5
Passing a No. 25 sieve, percent	0 - 2

   2. Beads having a Silane adhesion coating.
   3. Roundness - The glass beads will have a minimum of 80 percent true spheres.

B. Beads used in Temporary Pavement Markings meet AASHTO M 247 Type II uniform gradation.

PART 3 EXECUTION

3.1 PREPARATION

A. Line Control.
   1. Establish control points at 100 ft intervals on tangent and at 50 ft intervals on curves.
   2. Maintain the line within 2 inches of the established control points and mark the roadway between control points as needed.
      a. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the Department. Refer to article 3.4.
      b. Maintain the line dimension within 10 percent of the width and length dimensions defined in Standard Drawings.

B. Remove dirt, loose aggregate and other foreign material and follow manufacturer’s recommendations for surface preparation.

3.2 APPLICATION

A. Apply Pavement marking paint at the following Wet mil thickness requirements.
1. 20 – 25 wet mils for all markings.

Example Calculation: (Verify wet mil thickness)

$$\text{Wet Mils} = \frac{(0.133681\ ft^3/gal)}{(X\ ft/gal)(Z\ ft)} * 12000\ mil/ft$$

Where,
X = application rate. (Meter readings or dipping tanks).
Z = line width measured in feet.
12000 = conversion from ft to mil
0.133681 = conversion from gallons to cubic feet.

For information only: Approximate application rate for required mil thickness requirements.
1. 4 inch Solid Line: From 190 to 240 ft/gal
2. 4 inch Broken Line: From 760 to 960 ft/gal
3. 8 inch Solid Line: From 95 to 120 ft/gal

B. Refer to Table I for pavement markings that are less than 20 wet mils in thickness.

C. No additional payment for pavement markings placed in excess of 25 wet mils in thickness or exceeding dimensional requirements outlined in Article 3.1 paragraph A.

D. Painted Legends and Symbols 1 gallon per 80 square feet. Provide Engineer calculations of legends and symbols for pay determination.

E. Glass Sphere (Beads): Apply a minimum of 8 lbs/gal of paint, the full length and width of line and pavement markings.
1. Do not apply glass beads to contrast lines (black paint).

F. Begin striping operations no later than 24 hours after ordered by the Engineer.

G. At time of application apply lines and pavement markings only when the air and pavement temperature are:
1. 50 degrees F and rising for Acrylic Water Based Paint.

H. Comply with Traffic Control Drawings.

3.3 CONTRACTOR QUALITY CONTROL

A. Application Rate: Verify that the paint and beads are being applied within specified tolerances prior to striping.

B. Curing: Protect the markings until dry or cured. In the event that the uncured marking is damaged the marking will be reapplied and track marks left on the pavement will be removed at no additional cost to the Department.

3.4 REMOVE PAVEMENT MARKINGS

A. Use one of these removal methods:
   1. Grinding
   2. High pressure water spray
   3. Sand blasting
   4. Shot blasting.

B. Do not eliminate or obscure existing striping, in lieu of removal, by covering with black paint or any other covering material.

C. Use equipment specifically designed for removal of pavement marking material.

END OF SECTION

August 21, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 13553M

ATMS CONDUIT

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Replace Article 2.1, Paragraph A. with the following:

2.1 MATERIALS

A. Conduit and Fittings, in the nominal diameter as indicated in the plans:

1. Schedule 40 PVC rated at 194 degrees F, as specified. NEMA TC-2, NEMA TC-3, ASTM D 2241, UL Listed
2. HDPE (High Density Polyethylene) SDR11 rated, as specified. ASTM D 2241
3. Rigid steel as specified (UL-6)
4. Galvanized as specified (ANSI C80.1)

END OF SECTION

July 26, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 13556S

CLOSED CIRCUIT TELEVISION (CCTV) ASSEMBLY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All materials, labor, workmanship, equipment, testing, documentation, and incidental items required to install and test a complete and operational CCTV system as shown on plans and details.

B. Includes Contractor furnished conductors and incidentals required to provide a complete and functional CCTV.

C. State furnished freeway CCTV assembly with pan/tilt unit, camera control receiver, encoder, CCTV Wall Mount, CCTV Pole Adaptor, and State furnished CCTV cable.

1.2 RELATED SECTIONS

A. Section 02892: Traffic Signal

B. Section 13551: General ATMS Requirements

C. Section 13553: ATMS Conduit

D. Section 13595: ATMS Integration

E. Section 13556: Closed Circuit Television (CCTV) Assembly

1.3 REFERENCES

A. Electronic Industries Association (EIA) Standards

B. International Municipal Signal Association (IMSA) Specifications

C. National Electric Code (NEC)

1.4 SUBMITTALS

A. Provide all of the following submittals as described in Section 13551:
   1. Contractor Furnished Material and Equipment Lists
   2. Test Reports for the Cable & Conductor Test, the Local Field Operations Test, and the Thirty-Day Burn-In Test
   3. Completion Notice
   4. Manufacturer's Equipment Documentation
   5. As-Built Drawings

PART 2 PRODUCTS

2.1 CCTV MOUNTING

A. Luminaire Extension Arm Mounted Dome CCTV: provide luminaire extension arm horizontal hanging mount per plan details and as directed by Engineer.

B. Luminaire Extension Mounted Dome CCTV: provide mounting on vertical luminaire extension with vertical wall mount in accordance with AT series standard drawings, in accordance with plan details, and as directed by Engineer.

C. Mast Arm Mounted Dome CCTV: provide Mast Arm horizontal hanging mount per plan details, and as directed by Engineer.

2.2 CCTV ASSEMBLY

A. Department furnished camera assembly, including Dome Mount CCTV, encoder, control receiver, environmental enclosure, wall mount, pole adaptor and cabling.

B. Refer to Section 13556, Standard Drawing AT 10 and Details

2.3 MOUNTING EQUIPMENT

A. Provide clamp kit, mounting hardware, pipe, shims, grommet, and all additional equipment to attach CCTV assembly to pole, luminaire extension arm or mast arm.

B. Provide all stainless steel or hot-dipped galvanized fasteners and hardware unless otherwise approved. Provide copper pole grounding lug.

2.4 DATA SURGE SUPPRESSOR

A. General characteristics (typical):
   1. Typical application: RS-422.
   2. Surge: 36 kA.
   3. Turn-on at 10 mA: +2.8/-0.6 V dc.
   4. Resistance: 1 Ohm.
   5. Capacitance: 30 pF.
   6. Energy: 310 ft-lbs
   7. Let-through: less than +10/-1 Vp (peak open circuit voltage at max current).
   8. -3dB (600 Ohms) BW: 95Mhz
   9. Temperature: -40 degrees F to 185 degrees F Storage/Operating 122 degrees F.

2.5 VIDEO SURGE SUPPRESSOR

A. General characteristics (typical):
   1. Typical application: VLF/HF receive only, LAN, closed circuit video.
   2. Surge: 18 kA IEC 1000-4-5 8/20 ms waveform 80 ft-lbs.
   3. Turn-on Time: 4 ns for 2 kV/ns.
   4. VSWR: less than or equal to 1.1 to 1 over frequency range.
   5. Insertion Loss: less than or equal to 0.3 dB over frequency range.
   6. User Current: 2.0A dc continuous.
   7. Vibration: 1G up to 100Hz.
   8. Temperature: -50 degrees F to 185 degrees F Storage/Operating 113 degrees F.

PART 3 EXECUTION

3.1 INSTALLATION

A. Load, transport, and install all state-furnished materials per the manufacturer's instructions and as shown in the plans.

B. Provide conduit, mounting assembly, and all additional equipment required for a complete and operational CCTV system.

C. Install all wiring, and conduit in order to install a complete CCTV system as shown schematically on site plans and details.

1. Field locate all conduits per Section 13553 and junction boxes prior to beginning installation.
2. Protect existing conductors while installing camera cables and conductors.

D. Connect the controller and all wires as specified by the manufacturer.

E. Furnish and install all incidental items, such as wire nuts, grommets, tape connectors, and electrical nuts, necessary to make the CCTV system complete.

F. After installation, the exterior of all equipment must be free of all loose rust and mill scale, dirt, oil, grease and other foreign substances.

G. Field locate CCTV camera locations as directed by the Engineer.

3.2 CCTV ASSEMBLY

A. Assemble the camera assembly and prepare for installation per the manufacturer's instructions prior to delivery to the job site.

B. Deliver the assemblies to the job site as complete units, and install as per the plan details.

3.3 CCTV CABLES

A. Install camera cables in conduit and poles. All cable runs must be continuous and must run without splices between the camera and the cabinet.

B. Keep cable ends sealed at all times during installation using an approved cable end cap. Keep cable end sealed until connectors are installed.

C. Do not violate the minimum bending radius and the maximum pulling tension recommended by the manufacturer's specifications at any time.

D. Provide 6 ft of cable slack in all cabinets. Refer to Section 13555.

E. Make all camera cable connections between the CCTV assembly, RS-422/RS-232 converter, and communications equipment, as required to provide a fully operational CCTV system.

3.4 CONDUCTORS

A. Dome CCTV: furnish and install 3-#12 stranded IMSA Spec 20-1 power conductor cables between the 24 VAC transformer in the cabinet and the cabinet assembly on the luminaire arm.

B. Splices: not allowed between camera and cabinet.

3.5 TESTING AND ACCEPTANCE

A. Successfully complete the following tests:
   1. Cable and Conductor Test: Refer to Section 13551.
   2. Local Field Operations Test: Use the Closed Circuit Television (CCTV) Local Field Operations Test form Instruction. Obtain UDOT's newest version of the form from the UDOT Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.
      a. Conduct the test after the Cable and Conductor test has been successfully completed and the Cable and Conductor Test Report has been approved by the Engineer.
      b. Furnish all equipment, material, and labor necessary for the test.
   3. Acceptance Tests: Refer to Section 13595.

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 13558S

MODIFY FIBER JUNCTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Install, modify, and replace; conduit and junction boxes in various general configurations as shown on the plans and details.

B. Includes furnishing all required materials including conduit, junction boxes, and surface restoration components

C. Includes all materials, labor, workmanship, equipment, and incidental items required to modify conduit and fiber junctions.

D. Includes Mule Tape and locating wire on and through all conduit runs.

E. Includes cleanup and haul off of surplus materials

1.2 RELATED SECTIONS

A. Section 00725, Scope of Work

B. Section 02741: Hot Mix Asphalt (HMA)

C. Section 02771: Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.

D. Section 02892: Traffic Signal.

E. Section 02912: Topsoil

F. Section 02922: Seed, Turf Seed, and Turf Sod

G. Section 02932: Trees, Shrubs, and Groundcovers

G. Section 03575: Flowable Fill

H. Section 13553: ATMS Conduit

J. Section 13554: Polymer Concrete Junction Box

1.3 REFERENCES

A. Underwriters Laboratory

B. American National Standards Institutes (ANSI)

C. American Wire Gauge (AWG)

D. National Electrical Manufacturers Association (NEMA)

E. National Electric Code (NEC)

PART 2 PRODUCTS

2.1 MATERIALS

A. Conduit, Fittings, and Conduit Sweeps.
   1. Per Section 13553 - ATMS Conduit

B. Junction Boxes.
   1. Per Section 13554 - Polymer Concrete Junction Box

C. Asphalt
   1. Per Section 02741 - Hot Mix Asphalt (HMA)

D. Topsoil
   1. Per Section 02912 - Topsoil

E. Turf Sod
   1. Per Section 02922 - Seed, Turf Seed, and Turf Sod

F. Flowable Fill
   1. Per Section 03575 - Flowable Fill

PART 3 EXECUTION

3.1 GENERAL PREPARATION

A. Understand plans and details are diagrammatic and depict conduit routing and junction box placement in schematic form only. Base final routing on actual field conditions adapted in the field at the time of construction to meet their intended purpose and to minimize and prevent conflicts with existing features and utilities as approved by Engineer.

B. Sequence Fiber Junction Modifications to ensure that impact to traffic signal operations are minimized. Ensure that no traffic signal is out of operation for more than 2 hours and coordinate all traffic signal impacts with Provo City Traffic Operations [Contact Casey Serr @ 801-852-9742] and Provo City Public Safety 48 hours in advance.

C. Complete Fiber Junction Modifications prior to installation of Fiber Optic Cable.

D. Provide Traffic Control in accordance with UDOT standards prior to constructing within the roadway prism.

3.2 CONDUIT PLACEMENT

A. When installing conduit or conduit sweeps, do not allow conduit to deflect vertically or horizontally along its length by a ratio greater than 10:1, (e.g. no more than 4-inch deflection per 40 inch in length). Install all conduit bends to have a radius that is not less than 3 ft.

B. Do not place conduit directly above parallel utilities.

C. Locate conduit within 1 ft of existing parallel conduit run if the planned location of conduit is parallel to the existing traffic signal or ATMS conduit. Refer to Section 02892 – Traffic Signal.

D. Install conduits that cross-finished curbs and gutters, sidewalks, concrete flatwork, textured or decorative surfaces by boring, jacking, or drilling. Entirely replace any damaged section at no additional cost to the Department.

3.3 MODIFY FIBER JUNCTION TYPE 1

A. This item addresses the replacement of an existing junction box and modifications of existing conduit sweeps.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Replace Existing Conduit Sweeps in accordance with Section 13553 – ATMS Conduit requirements.
   1. Sawcut as necessary, excavate and expose existing conduit sweeps and to allow sufficient access to replace with new conduit sweeps.
   2. Remove existing Conduit Sweeps
   3. Install 36” radius manufactured sweeps sized to match existing conduit diameter.

D. Remove Existing Junction Box and replace with Type III Polymer Concrete Junction Box in accordance with Section 13554 – Polymer Concrete Junction Box requirements.

E. Extend conduit as necessary to accommodate placement of new Type III Polymer Concrete Junction box in accordance with Section 13553 – ATMS Conduit requirements including placement of mule tape, locating wire, and termination kits.

F. Minimize disturbance to existing surfaces and facilities as practicable.

G. Restore disturbed surfaces in accordance with Paragraph 3.10

3.4 MODIFY FIBER JUNCTION TYPE 2

A. This item addresses the replacement of existing conduit sweeps with conduit sleeves and the removal of an existing junction box.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Remove Existing Conduit Sweeps and replace with conduit sleeve in accordance with Section 13553 – ATMS Conduit requirements.
   1. Sawcut as necessary, excavate and expose existing conduit sweeps and to allow sufficient access to remove conduit sweeps and replace with conduit sleeves.
   2. Remove existing Conduit Sweeps
   3. Install conduit sleeves and fittings sized to match existing conduit diameter including placement of mule tape and locating wire.
   4. Abandon unused conduit in place.

D. Remove Existing Junction Box.

E. Minimize disturbance to existing surfaces and facilities as practicable.

F. Restore disturbed surfaces in accordance with Paragraph 3.10.

3.5 MODIFY FIBER JUNCTION TYPE 3

A. This item addresses the replacement of an existing junction box.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Remove Existing Junction Box and replace with Type III Polymer Concrete Junction Box in accordance with Section 13554 – Polymer Concrete Junction Box requirements.
   1. Excavate and expose existing junction box and conduits to allow sufficient access to replace junction box.
   2. Cut back conduit stubs as necessary to accommodate placement of Type III Concrete Polymer Junction Box.
   3. Install Type III Concrete Polymer Junction Box on existing conduits.
   4. Install conduit termination kits for water tight seal to box.
   5. Protect and maintain any existing conduit or conductors.

D. Minimize disturbance to existing surfaces and facilities as practicable.

E. Restore disturbed surfaces in accordance with Paragraph 3.10

3.6 MODIFY FIBER JUNCTION TYPE 4

A. This item addresses the installation of a new junction box along the path of an existing ATMS conduit.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Install Type III Polymer Concrete Junction Box in accordance with Section 13554 – Polymer Concrete Junction Box requirements.
   1. Excavate and expose existing conduits to allow sufficient access to install junction box.
   2. Cut back conduit as necessary to accommodate placement of Type III Concrete Polymer Junction Box.
   3. Install Type III Concrete Polymer Junction Box on existing conduits.
   4. Install conduit termination kits for water tight seal to box.
   5. Protect and maintain any existing conduit or conductors.

D. Minimize disturbance to existing surfaces and facilities as practicable.

E. Restore disturbed surfaces in accordance with Paragraph 3.10

3.7 MODIFY FIBER JUNCTION TYPE 5

A. This item addresses the installation of a conduit and conduit sweeps to bypass an existing junction box.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Install Conduit and Conduit Sweeps on existing conduit to provide a conduit bypass of the existing junction box in accordance with Section 13553 – ATMS Conduit requirements.

1. Sawcut as necessary, excavate and expose existing junction box and conduits to allow sufficient access to install new conduit and conduit sweeps to allow interconnect conduit to bypass junction box.
2. Verify orientation, direction, and location of existing interconnect conduits.
3. Remove existing conduit terminations in existing junction box.
4. Install manufactured conduit sweeps and fittings sized to match existing conduit (11 1/4, 22 1/2, 45, 90 degree angles) and conduit to effect junction box bypass including placement of mule tape and locating wire.
5. Terminate abandoned conduit runs into junction box for water tight seal to junction box.

D. Minimize disturbance to existing surfaces and facilities as practicable.

E. Restore disturbed surfaces in accordance with Paragraph 3.10

3.8 MODIFY FIBER JUNCTION TYPE 6

A. This item addresses the installation of a junction box, conduit, and conduit sweeps to bypass an existing junction box while maintaining access to the old junction box and cabinet.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Install Conduit and Conduit Sweeps on existing conduit to provide a bypass of the existing junction box in accordance with Section 13553 – ATMS Conduit requirements.

1. Sawcut as necessary, excavate and expose existing junction box and conduits to allow sufficient access to install new conduit, conduit sweeps, and new junction box.
2. Verify orientation, direction, and location of existing interconnect conduits and existing junction box.
3. Remove existing conduit terminations in existing junction box.
4. Install manufactured conduit sweeps and fittings sized to match existing conduit (11 1/4, 22 1/2, 45, 90 degree angles) and conduit to affect junction box bypass including placement of mule tape and locating wire.
5. Terminate abandoned conduit runs in existing junction box for water tight seal to junction box.

D. Install Type III Polymer Concrete Junction Box parallel and adjacent to existing junction box, in accordance with Section 13554 – Polymer Concrete Junction Box requirements.
1. Ensure excavation is sufficient to allow for installation junction box.
2. Install Type III Concrete Polymer Junction Box installed on conduit and conduit sweeps.
3. Install conduit termination kits for water tight seal to new junction box.

E. Minimize disturbance to existing surfaces and facilities as practicable.

F. Restore disturbed surfaces in accordance with Paragraph 3.10

3.9 MODIFY FIBER JUNCTION TYPE 7

A. This item addresses the installation of conduit and conduit sweeps to connect existing interconnect conduit to an existing junction box on a crossing or adjacent interconnect line.

B. Review plan details to understand the intended purpose of this modification to fiber junction point.

C. Install Conduit and Conduit Sweeps on existing conduit to connect existing fiber interconnect conduit to an existing fiber optic junction box in accordance with Section 13553 – ATMS Conduit requirements.
1. Sawcut, excavate and expose existing conduit adjacent to existing interconnect junction box per plan details.
2. Verify orientation, direction, and location of existing interconnect conduits.
3. Excavate trench to install conduit and conduit sweeps to connect existing interconnect conduit and existing fiber optic junction box per plan details.
4. Install conduit, fittings, and manufactured conduit sweeps sized to match existing conduit (11 1/4, 22 1/2, 45, 90 degree angles) to allow

abandonment of interconnect conduit to existing controller junction box including placement of mule tape and locating wire.

5. Protect conduit terminations within existing junction boxes.
6. Abandon unused conduit in place.

D. Minimize disturbance to existing surfaces and facilities as practicable.

E. Restore disturbed surfaces in accordance with Paragraph 3.10

3.10 SURFACE RESTORATION

A. Restore all areas, including landscaping, concrete pavement, asphalt, finished curbs and gutters, box culverts, sewers, underground water mains, sprinkler systems, sidewalks, concrete flatwork, textured or decorative surfaces damaged during conduit and junction box installation.

B. Restore impacted surfaces under pavement as follows:
   1. Backfill all excavated areas with Flowable Fill in accordance with Section 03575 – Flowable Fill requirements to sufficient depth to meet asphalt surfacing requirements.
   2. Prior to placement of flowable fill, anchor any conduit in trench to maintain the required conduit depth during pour.
   3. Utilize HMA – ½ inch in accordance with Section 02741 – Hot Mix Asphalt (HMA) requirements for all pavement repairs.
   4. The required thickness or depth of all pavement repairs is governed by the following table:

Existing Pavement Thickness	Depth of Pavement Repair Required
Less than 4 inches	4 inches
4 inches to 7 inches	Match Existing
Greater than 7 inches	7 inches

C. Replace existing sidewalk or curb and gutter to match the existing cross section and grade in a condition equal to or better than the preconstruction installation as follows:
   1. Restore curb and gutter in accordance with Section 02771 - Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.
   2. Replace entire sections of decorative sidewalk where trenching is necessary. Patching of decorative sidewalk will not be allowed.

D. Restore landscaped / sodded areas as follows:
   1. Document landscaped areas with digital photographs prior to disturbance. Forward digital photos to engineer for reference.

2. Remove, preserve, and protect vegetation within disturbance limits for restoration following construction.
3. Preserve and protect irrigation facilities within disturbance limits.
4. Restore irrigation system to operating condition prior to re-vegetation.
5. Place a minimum of 4" of Topsoil per Section 02912 – Topsoil requirements prior to replanting any landscaping feature.
6. Restore stripped Sod, or upon unacceptability of stripped sod as determined by Engineer, replace with new Sod in accordance with Section 02922 – Seed, Turf Seed, and Turf Sod requirements.
7. Restore Shrubs, Trees, or other impacted groundcovers removed during construction, or replace said vegetation upon unacceptability for restoration as determined by Engineer, all in accordance with Section 02932 – Trees, Shrubs, and Groundcovers requirements.

E. Restore areas not covered in items A-D above that are damaged during conduit and junction box installation to match conditions that existed prior to construction disturbance.

F. Coordinate with local utilities for utility repair. Advise the Engineer of all repairs.

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 13559S

REMOVE INTERCONNECT CABLE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal of existing copper and fiber optic cable from existing conduits to accommodate new fiber optic cable.

B. Delivery of salvaged and removed fiber optic cable to Provo City.

1.2 RELATED SECTIONS

A. Section 13551: General ATMS Requirements

B. Section 13594: Fiber Optic Communication

PART 2 PRODUCTS

2.1 MATERIALS

A. Not Used

PART 3 EXECUTION

3.1 REMOVE INTERCONNECT CABLE

A. Isolate existing ATMS conduits identified for the removal of existing interconnect cable, either fiber optic or copper.

B. Provide flat profile, low stretch polyester, sequential footage marked, 2500 lb. tensile strength Mule Tape or approved equal in each conduit from which interconnect cable is removed for use in pulling replacement fiber optic cable.

C. On existing fiber optic cable, use shear pins or other failsafe means to prevent exceeding the maximum cable pulling tension specified by the cable manufacturer.

3.2 SALVAGE MATERIALS

A. Salvage all fiber optic cable in continuous lengths greater than 100 lineal feet removed from conduits.

B. Maintain the integrity of the cable during removal and transport. Contact the Engineer to arrange for an inspection by the Department to verify Cable prior to removal, otherwise the equipment is functional and undamaged.

C. Contact the Engineer at lest 48 hours prior to removal.

D. Spool cable neatly onto appropriately sized spool. Do not cut long cables whenever possible. Cut cable only at splice locations or as directed by Engineer.

E. Do not exceed the minimum bending radius and maximum pulling tension recommended by the manufacturer's specifications.

C. Deliver salvaged fiber optic cable to a Provo City storage site as determined by Provo City. Contact Casey Seer P.E., Provo City Traffic Engineer @ 801-852-6742 to coordinate delivery.

3.3 DISPOSE OF EXCESS MATERIALS

A. Dispose of, in an approved fashion, all copper interconnect line removed from conduits together with small lengths of fiber optic cable.

END OF SECTION

August 21, 2005

SPECIAL PROVISION

PROJECT #CM-LC49(86)

SECTION 13594M

FIBER OPTIC COMMUNICATION

Replace Article 2.2 with the following:

2.2 FIBER OPTIC COMMUNICATION CABLE

A. Contact the Engineer for approval of fiber that is to be used. Fiber must be approved by the USDA Rural Electrification Administration (PE-90).

B. The fiber optic cable is an Outside Plant (OSP) type, nonarmored dielectric loose tube, single-mode cable.

C. Include the manufacturer's test documentation. This documentation indicates the attenuation of each cable fiber in dB/km, measured at 1310 nm and 1550 nm for single-mode.

D. Outside Plant (OSP) Single-mode.
   1. Fiber Optic Glass: Corning SMF-28E or approved equal.
   2. Fiber Optic Cable: Corning ALTOS or approved equal.

E. Fiber optic cable must comply with Telcordia GR20-CORE and TIA/EIA-4720000-A.

Replace Article 2.3 with the following:

2.3 FIBER OPTIC CONNECTORS

A. With the following characteristics and as specified on the plans:
   1. ST
      a. Factory installed or field installed ST or ST compatible connectors.
      b. Ceramic ferrules and metallic connector bodies.
      c. Maximum insertion loss: 0.30 dB.
      d. Connector back reflection: greater than 35 dB.
   2. LC
      a. Factory installed or field installed LC or LC compatible connectors.
      b. Ceramic ferrules.

c. Maximum insertion loss: 0.30 dB.
d. Connector back reflection: greater than 35 dB.

B. Clean all connectors with alcohol wipes and a compressed cleaning gas.

C. Install new fiber optic drop cable with spider fan-out kits to cabinet as indicated on the plans.

D. Field polishing of connectors: Not acceptable.

Add Article 2.6, and 2.7 as follows:

2.6 FIBER OPTIC CABLE

A. Utilize 96 Strand Fiber at specified plan locations.

2.7 FIBER OPTIC DROP CABLE WITH FAN OUT KIT

A. Utilize State Furnished, 6 Strand Fiber Optic Drop Cable with Fan Out Kit at specified plan locations.

Replace Article 3.2 with the following:

3.2 FIBER OPTIC CABLE INSTALLATION REQUIREMENTS

A. Do not perform fiber splices that are not shown in approved splice details without prior written authorization from UDOT ITS Fiber Division located at the UDOT Traffic Operation Center, 2060 S., 2760 W., Salt Lake City. Splice all drop cables to the main run of fiber with a mid span entry to the cable, unless shown differently on project plans.

B. Notify the Engineer 72 hours in advance of fiber optic cable installation into any existing conduit or building facility.

C. The Engineer may initiate special inspection procedures to verify the condition of existing communications facilities. Observe inspections as desired.

D. Perform all work in facilities on conduits, junction boxes, cabinets, and buildings for example containing the Department's existing communications equipment only in the presence of Department’s representative.
1. Refer to Section 13554 for conduits and junction boxes.

2. Refer to Section 13555 for cabinets.

E. Restore Contractor damaged facilities within 48 hours.

F. Lubricate cable with a lubricant designed for fiber optic cable installation.

G. Use shear pins or other failsafe means to prevent exceeding the maximum cable pulling tension specified by the cable manufacturer.

H. Maintain the following minimum bend radiuses:
1. 20 times Cable Diameter Short Term During Installation.
2. 10 times Cable Diameter Long Term Installed.

I. Maintain the following minimum slack requirements:
1. Splice Points: 35 ft. from installed splice case to conduit on all cables
2. All Other Junction Boxes: 50 ft.
3. Cabinets: 150 ft.

J. Replace any fiber optic cable segment not meeting the requirements of the specifications in its entirety between splice points shown on the plans.

K. Place the locator wire in the dedicated 1 inch conduit for new conduit installation (Refer to Section 13553) as shown in the plan details.

L. Place mule tape with fiber optic cable in new conduit installation (Refer to Section 13553) as shown in the plan details.

M. Place locator wire and mule tape with the fiber optic cable in existing conduit installations (Refer to Section 13553).

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 13596S

FIBER OPTIC POLE MOUNTED RISER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish and install a pole mounted riser and associated features for fiber optic communications.

1.2 RELATED SECTIONS

A. Section 13551: General ATMS Requirements

B. Section 13553: ATMS Conduit

C. Section 13554: Polymer Concrete Junction Box

1.3 REFERENCES

A. ASTM D 2241: Standard Specification for Poly-Vinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series)

B. American National Standards Institutes (ANSI)

C. American Wire Gauge (AWG)

D. American National Standards Institutes (ANSI)

E. National Electric Code (NEC)

F. National Electrical Manufacturers Association (NEMA)

G. Railroad Specifications

H. Underwriters Laboratory

PART 2 PRODUCTS

2.1 MATERIALS

A. Conduit and Fittings:
   1. UV Rated Schedule 80 PVC rated at 194 degrees F, as specified. NEMA TC-2, NEMA TC-3, ASTM D 2241, UL Listed
   2. HDPE (High Density Polyethylene) SDR11 rated, as specified. ASTM D 2241
   3. Rigid steel as specified (UL-6)
   4. Galvanized as specified (ANSI C80.1)

B. Standoff Brackets: Provide brackets that allow a minimum of 6 inches of clearance from the pole to the conduit.

C. Provide locator wire, mule tape, and any other incidental items needed to complete work as shown on plans.

PART 3 EXECUTION

3.1 GENERAL PREPARATION

A. Contact the Provo City Power Department prior to beginning work on designated pole.

B. Contact iProvo prior to beginning work. Contact is Mr. Jeff Wilson @ 801-852-6839.

C. Ensure that Polymer Concrete Junction Box (Type III) has been installed. Refer to Section 13554.

3.2 PLACEMENT

A. Remove surfacing and excavate as necessary to place conduit as shown on detail.

B. Install Standoff Brackets and conduit as shown on Detail.

C. Install metal conduit to a height of 10 feet from the ground.

D. Install PVC conduit at locations over 10 feet above ground.

E. Ensure that two standoff brackets are installed for every 10 vertical feet of conduit. Do not bury standoff brackets.

F. Install GRS Conduit below ground. Extend GRS conduit above ground such that backfill or future grade adjustments will not cause metal conduit to be buried.

G. Connect conduit to previously installed Polymer Concrete Junction Box.

H. Fiber Optic Drop Cable is to be installed as part of a separate item. Refer to Section 13594: Fiber Optic Communication and Section 16711S: Traffic Signal Modification.

I. Splicing at top of riser will be performed by iProvo. Notify iProvo when installation of riser and drop cable is completed.

END OF SECTION

August 2, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 13597S

ATMS INTEGRATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Integration of all appropriate ATMS devices, including successful completion and documentation of all field operational tests.

B. Install and connect all incidental equipment as required for a complete and operational system.

1.2 RELATED SECTIONS

A. Section 13551: General ATMS Requirements

1.3 SUBMITTALS

A. In accordance with Section 13551.

B. Test report for the Thirty-Day Burn-In Test.

PART 2 PRODUCTS Not used

PART 3 EXECUTION

3.1 ACCEPTANCE TESTING

A. Provide a Completion Notice per Section 13551 once Local Field Operations Tests have been successfully completed on all devices. Notify the Engineer of readiness to begin the Integration Task.

B. Integration requires the successful completion of a Thirty-Day Burn-In Test, consisting of the verification of valid data and control at the communications

demarcation point for all devices. Obtain UDOT's newest version of the 30 Day ATMS Burn-in Test Report form from the UDOT Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.

C. Furnish all necessary test materials and cables and connectors to complete and test the integration of the ATMS device.

D. Notify the Engineer at least five working days in advance of the proposed date upon which the Acceptance Tests will take place. Obtain UDOT's newest version of the 5-Day ATMS Testing Pre-Notification form from the UDOT Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719. The Engineer witnesses the Acceptance Tests or designates an individual or entity to witness the Acceptance Test on the Department's behalf.

E. Once the Local Field Operations Test has been successfully completed on all sites, the Engineer may grant Partial Acceptance of the project. The Thirty-Day Burn-In period begins at this time. Begin the Thirty-Day Burn-In period for all ATMS devices of the same type on the same day.

F. Operate the device on a daily basis during the Thirty-Day Burn-In period noting the results on the 30-Day Burn-in ATMS test form.
1. Accomplished by Department staff along with the contractor.
2. The Traffic Operations Center (TOC) staff may also help verify the daily equipment operation if at the time of testing, communications are consistently provided from the site to the TOC.

G. Promptly remedy the defect in the event of a failure of Contractor furnished equipment or workmanship.
1. Provide the Engineer with a Completion Notice.
2. Restart the Thirty-Day Burn-In period re-starts for that device.
3. The Engineer may identify an independent third party to specify what defects (if any) must be addressed in order for the work to meet the specifications in the event of a second failure at the same device.
   a. At the Contractor's expense if defects are identified, otherwise Department covers the third party's costs.
4. The Engineer may authorize others to complete the work at the Contractor's expense if the Contractor fails to remedy any identified deficiencies in the work within the time required by the Engineer.

H. Troubleshoot all problems.
1. Suspend the thirty-day test while the problem is corrected on state furnished item.
2. Resume testing follow resolution.

I. Engineer grants Final Acceptance after the Thirty-Day Burn-In period is complete and all required documentation has been received.

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 13598S

NID INTEGRATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Integration of all NID (Non Intrusive Detection) devices, including successful completion and documentation of all field operational tests

B. Install and connect all incidental equipment as required for a complete and operational NID system.

C. Provide services of qualified personnel to oversee and complete installation and Integration of NID devices.

1.2 RELATED SECTIONS

A. Section 13551: General ATMS Requirements

B. Section 16136S: NID System

C. Section 16136S: NID Cable

1.3 SUBMITTALS

A. In accordance with Section 13551: General ATMS Requirements.

B. Proposed Qualified Personnel for Engineer Approval

C. Certification of Radar Gun Accuracy Calibration.

D. Test report for the Thirty-Day Burn-In Test.

1.4 TERMS

A: **Qualified Personnel:** Personnel qualified through verifiable experience, specialized training, or manufacturer support to oversee installation, configuration, operation, and complete NID Integration as approved by Engineer. Minimum qualifications include:

1. Demonstrated experience in the installation of principle NID components in at least 5 previous projects with verifiable references.

2. Demonstrate completion of manufacturer or industry supported specialized training specifically directed to NID components contained herein.

3. Demonstrate direct technical backup support provided by, the manufacturer of the primary components of the NID system. The core components are manufactured by **Wavetronix LLC,** 380 S. Technology Ct.,Lindon, UT 84042 –(801) 764-0277

PART 2 PRODUCTS Not used

PART 3 EXECUTION

3.1 QUALIFIED PERSONNEL

A. Provide services of qualified personnel to oversee and complete installation and Integration of NID devices.

3.2 ACCEPTANCE TESTING

A. Provide a Completion Notice per Section 13551 once Local Field Operations Tests are successfully completed on all devices. Notify the Engineer of readiness to begin the Integration Task.

B. Integration requires the successful completion of a Thirty-Day Burn-In Test, consisting of the verification of valid data and control at the communications demarcation point for all devices. Obtain UDOT's newest version of the 30 Day ATMS Burn-in Test Report form from the UDOT Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719.

C. Furnish all necessary test materials and cables and connectors to complete and test the integration of the ATMS device.

D. Notify the Engineer at least five working days in advance of the proposed date upon which the Acceptance Tests will take place. Obtain UDOT's newest version of the 5-Day ATMS Testing Pre-Notification form from the UDOT Web site. Refer to http://www.udot.utah.gov/index.php/m=c/tid=719. The Engineer witnesses the Acceptance Tests or designates an individual or entity to witness the Acceptance Test on the Department's behalf.

E. Once the Local Field Operations Test has been successfully completed on all sites, the Engineer may grant Partial Acceptance of the project. The Thirty-Day Burn-In period begins at this time. Begin the Thirty-Day Burn-In period for all ATMS devices of the same type on the same day.

F. Operate the device on a daily basis during the Thirty-Day Burn-In period noting the results on the 30-Day Burn-in ATMS test form.
1. Accomplished by Department staff along with the contractor.
2. The Traffic Operations Center (TOC) staff may also help verify the daily equipment operation if at the time of testing, communications are consistently provided from the site to the TOC.

G. Promptly remedy the defect in the event of a failure of Contractor furnished equipment or workmanship.
1. Provide the Engineer with a Completion Notice.
2. Restart the Thirty-Day Burn-In period re-starts for that device.
3. The Engineer may identify an independent third party to specify what defects (if any) must be addressed in order for the work to meet the specifications in the event of a second failure at the same device.
   a. At the Contractor's expense if defects are identified, otherwise Department covers the third party's costs.
4. The Engineer may authorize others to complete the work at the Contractor's expense if the Contractor fails to remedy any identified deficiencies in the work within the time required by the Engineer.

H. Troubleshoot all problems.
1. Suspend the thirty-day test to correct problems on state furnished items.
2. Resume testing follow resolution.

I. Engineer grants Final Acceptance after the Thirty-Day Burn-In period is complete and all required documentation has been received.

END OF SECTION

August 21, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 16076S

ROUND-ABOUT CCTV

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All materials, labor, workmanship, equipment, testing, documentation, and incidental items required to install and test a complete and operational Round-About CCTV system including pole, ATMS Cabinet and Foundation and Junction Boxes as shown on plans and details.

1.2 RELATED SECTIONS

A. Section 0725: Scope of Work

B. Section 01554: Traffic Control

C. Section 02771: Curbs, Gutters, Driveways, Pedestrian Access Ramps, and Plowable End Sections

D. Section 2912: Topsoil

E. Section 02922: Seed, Turf Seed, and Turf Sod

F. Section 02932: Trees, Shrubs, and Groundcovers

G. Section 13551: General ATMS Requirements

H. Section 13554: Polymer Concrete Junction Box

I. Section 13555: ATMS Cabinet

J. Section 13556: Close Circuit Television (CCTV) Assembly

K. Section 13561: ATMS Power Service

L. Section 13595: ATMS Integration

M. Section 16525: Highway Lighting

1.3 REFERENCES

A. American National Standards Institute (ANSI)

B. Electric Utility Service Equipment Requirements Committee (EUSERC)

C. Electronics Industries Association (EIA)

D. Institute of Electrical and Electronics Engineers (IEEE)

E. Institute of Traffic Engineers (ITE), Technical Reports

F. National Electric Code (NEC)

G. National Electrical Manufacturers Association (NEMA)

H. Underwriters Laboratory (UL)

1.4 SUBMITTALS

A. Certified test report of wire compliance as specified. IMSA 20-1, 50-2, 51-1, 51-3, 51-5, 51-7, 60-6

B. Submit samples of materials for approval when requested.

C. Submit two copies of the following within 15 days after receiving a Notice to Proceed:
   1. List of equipment and materials (name of manufacturer, size, and identification number)
   2. Detailed shop drawing, wiring diagrams, and certifications
   3. Manufacturers' warranties, guarantees, instruction sheets, and parts lists

D. Provide all of the following submittals as described in Section 13551:
   1. Contractor Furnished Material and Equipment Lists
   2. Test Reports for the Cable & Conductor Test, the Local Field Operations Test, and the Thirty-Day Burn-In Test
   3. Completion Notice
   4. Manufacturer's Equipment Documentation
   5. As-Built Drawings

1.5 ACCEPTANCE

A. CCTV - Refer to Section 13556.

B. ATMS – Refer to Section 13551, Article 1.6.

C. Refer to Section 13595.

PART 2 PRODUCTS

2.1 GENERAL MATERIALS

A. Use electrical components as listed and defined by the National Electric Code (NEC).

2.2 STELL CCTV POLE

A. Utilize State Furnished Highway Luminaire Pole. Refer to Section 16525, article 2.6 and 2.7, Section and SL Drawings.

2.3 CCTV STEEL POLE FOUNDATION

A. Refer to Section 13525, Part 3 Execution and SL Drawings.

2.4 JUNCTION BOX

A. Refer to Section 13554.

2.5 CCTV ASSEMBLY

A. Department furnished camera assembly, including Dome Mount CCTV, encoder, control receiver, environmental enclosure, wall mount, pole adaptor and cabling.

B. Refer to Section 13556, Standard Drawing AT 10 and Details

2.3 MOUNTING EQUIPMENT

A. Provide clamp kit, mounting hardware, pipe, shims, grommet, and all additional equipment to attach CCTV assembly to pole, luminaire extension arm or mast arm.

B. Provide all stainless steel or hot-dipped galvanized fasteners and hardware unless otherwise approved. Provide copper pole grounding lug.

2.7 DATA SURGE SUPPRESSOR

A. Refer to Section 13556, Article 2.6.

2.8 VIDEO SURGE SUPPRESSOR

A. Refer to Section 13556, Article 2.7.

2.2 ATMS CABINET AND FOUNDATION

A. Follow SL series Standard Drawings.

B. Refer to Section 13555.

PART 3 EXECUTION

3.1 GENERAL PREPARATION

A. Conform to the National Electrical Code (NEC).

B. Pick up State-furnished materials

1. Pick up State Furnished ATMS Cabinet and Equipment at Region Signal Lab. Contact Grant Jackson, 801-227-8040 ten (10) days in advance of desired pick up date.

2. Pick up remaining supplies at the Department's Central Warehouse, 4501 South 2700 West, Salt Lake City, UT. Contact Brad Cameron, 801-887-3719 ten (10) days in advance of desired pick up date for all State Furnished ATMS Materials. Contact Doug Sneddon 48 hours in advance to schedule pickup of all State Furnished materials.

3. Furnish loading equipment and personnel to load State Furnished materials.

C. Field investigate sites to determine locations of irrigation systems, utilities and extent of landscaping.

D. Place and maintain traffic control in accordance with Section 01554.

E. Saw cut concrete or other improved surfaces removed in the construction area, and replace with in-kind materials to match the existing conditions.

F. CCTV Installation: Refer to Section 13556, Part 3.

3.2 INSTALL WIRING

A. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly and Section 13551 – General ATMS Requirements. Follow AT series Standard Drawing

3.3 CCTV ASSEMBLY

A. As Specified.

B. Refer to AT series Standard Drawings.

C. Refer to Section 13556.

D. Mount CCTV camera to Steel CCTV Pole as specified at each location.

E. Install CCTV Camera Cable from Dome Mount CCTV camera to Cabinet. No splices allowed between camera and cabinet.

F. Furnish and install 3-#12 stranded IMSA Spec 20-1 power conductor cables between the 24 VAC transformer in the cabinet and the cabinet assembly on the luminaire arm.

3.4 STEEL CCTV POLE, ANCHOR BOLTS, AND STEEL CCTV POLE FOUNDATION, CCTV CABLES, AND CONDUCTORS

A. Refer to Section 13556, Part 3.

3.5 JUNCTION BOX

A. As specified

B. Follow SL series Standard Drawings

C. Refer to Section 13554, Part 3

3.6 ATMS CABINET

A. As specified

B. Follow SL series Standard Drawings and Section 13555.requirements

3.7 POWER SOURCE

A. Contact Provo Power [Mr. Travis Ball @ 801-852-6921] at least 30 days before the connection date. Verify the exact location, voltage, procedure, and materials required by the power company.

B. Follow SL series Standard Drawings.

C. Refer to Section 13561: ATMS Power Service requirements.

D. Utilize Underground Service Pedestal.

3.8 TESTING AND ACCEPTANCE

A. Refer to Section 13556

B. Comply with requirements of Section 13595: ATMS Integration

3.9 SURFACE RESTORATION

A. Restore all areas, including landscaping, concrete pavement, asphalt, finished curbs and gutters, box culverts, sewers, underground water mains, sprinkler systems, sidewalks, concrete flatwork, textured or decorative surfaces damaged during conduit and junction box installation.

B. Replace existing sidewalk or curb and gutter to match the existing cross section and grade in a condition equal to or better than the preconstruction installation as follows

C. Restore curb and gutter in accordance with Section 02771 - Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.

D. Restore landscaped / sodded areas as follows:

1. Document landscaped areas with digital photographs prior to disturbance. Forward digital photos to engineer for reference
2. Remove, preserve, and protect vegetation within disturbance limits for restoration following construction.
3. Preserve and protect irrigation facilities within disturbance limits.
4. Restore irrigation system to operating condition prior to re-vegetation.

5. Place a minimum of 4” of Topsoil per Section 02912 prior to replanting any landscaping feature.
6. Restore stripped Sod, or upon unacceptability of stripped sod as determined by Engineer, replace with new Sod in accordance with Section 02922.
7. Restore Shrubs, Trees, or other impacted groundcovers removed during construction, or replace said vegetation upon unacceptability for restoration as determined by Engineer, all in accordance with Section 02932.

G. Restore areas not covered in items A-D above damaged during pole, cabinet and junction box installation to match conditions that existed prior to construction disturbance.

H. Coordinate with local utilities for utility repair. Advise the Engineer of all repairs.

END OF SECTION

August 18, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 16136S

NID SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish, install, and test NID (Non Intrusive Detection) System of the type specified.

B. Furnish, install, and test NID (Non Intrusive Detection) Cable to control cabinet and provide complete functioning detection capability for NID System

1.2 RELATED SECTIONS

A. Section 00725, Scope of Work

B. Section 02741: Hot Mix Asphalt (HMA)

C. Section 02771: Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.

D. Section 02892: Traffic Signal

E. Section 02912: Topsoil

F. Section 02922: Seed, Turf Seed, and Turf Sod

G. Section 02932: Trees, Shrubs, and Groundcovers

H. Section 3055: Portland Cement Concrete

I. Section 3310: Structural Concrete

J. Section 03575: Flowable Fill

K. Section 13551: General ATMS Requirements

L. Section 13553: ATMS Conduit

M. Section 13554: Polymer Concrete Junction Box

N. Section 13556: Closed Circuit Television (CCTV) Assembly

O. Section 13598S: NID Integration

P. Section 16525: Highway Lighting

1.3 REFERENCES

A. International Municipal Signal Association (IMSA)

B. National Electric Code (NEC)

C. Underwriters Laboratory

D. American National Standards Institutes (ANSI)

E. American Wire Gauge (AWG)

F. National Electrical Manufacturers Association (NEMA)

G. AASHTO M 31: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

H. AASHTO M 111: Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products

I. AASHTO M 270 Grade 36: Carbon and High-Strength Low-Alloy Structural Steel Shapes, Plates, and Bars and Quenched-and-Tempered Alloy Structural Steel Plates for Bridges

J. AASHTO M 284: Epoxy Coated Reinforcing Bars

E. AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Highway Bridges

K. AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals

L. AASHTOs Standard Specifications for Highway Bridges

M. ASTM A 36: Standard Specification for Carbon Structural Steel

N. ASTM A 123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron or Steel Products

O. ASTM A 153: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

P. ASTM A 307: Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength

1.4 SUBMITTALS

A. Provide all of the following submittals as described in Section 13551:
   1. Contractor Furnished Material and Equipment Lists
   2. Test Reports for the Cable & Conductor Test, the Local Field Operations Test, and the Thirty-Day Burn-In Test
   3. Completion Notice
   4. Manufacturer's Equipment Documentation
   5. As-Built Drawings

B. Samples of materials for approval when requested.

PART 2 PRODUCTS

2.1 NID POLE

A. Utilize State Furnished Highway Luminaire Pole. Refer to Section 16525, article 2.6 and 2.7.

2.2 NID STEEL POLE FOUNDATION

A. Refer to Section 13525, Part 3 Execution, Section 16525 and SL Drawings.

2.3 JUNCTION BOX

A. Refer to Section 13554.

2.4 NON INTRUSIVE DETECTOR

A. Department furnished.

2.5 MOUNTING EQUIPMENT

A. Provide clamp kit, mounting hardware, pipe, shims, grommet, and all additional equipment to attach NID Detector to pole or mast arm.

B. Provide all stainless steel or hot-dipped galvanized fasteners and hardware unless otherwise approved. Provide copper pole grounding lug.

2.6. CONDUIT:

A. Conduit and fittings:
   1. Schedule 40 PVC rated at 190 degrees F as specified. NEMA TC-2, TC-3. UL Listed.
   2. Rigid steel as specified. UL 6.
   3. Galvanized as specified. ANSI C80.1.

B. Conduit Sweeps
   1. Per Section 13553 - ATMS Conduit

2.7 NID CABLE

A. NID Cabling: State Furnished.

2.8 TRENCH AND SURFACE RESTORATION

A. Asphalt
   1. Per Section 02741 - Hot Mix Asphalt (HMA)

B. Topsoil
   1. Per Section 02912 - Topsoil

C. Turf Sod
   1. Per Section 02922 - Seed, Turf Seed, and Turf Sod

D. Flowable Fill

1. Per Section 03575 - Flowable Fill

PART 3 EXECUTION

3.1 GENERAL PREPARATION

A. Understand plans and details are diagrammatic and depict pole, conduit, junction box, and cabling in schematic form only. Base final routing on actual field conditions adapted in the field at the time of construction to meet their intended purpose and to minimize and prevent conflicts with existing features and utilities as approved by Engineer.

B. Sequence installation of NID Assembly and NID Cable to ensure impacts to existing traffic signal operations are minimized. Ensure that no traffic signal is out of operation for more than 2 hours and coordinate all traffic signal impacts with Provo City Traffic Operations [Contact Casey Serr @ 801-852-9742] and Provo City Public Safety 48 hours in advance.

C. Provide Traffic Control in accordance with UDOT standards prior to constructing within the roadway prism.

3.2 NID ASSEMBLY TYPE I

A. INSTALLATION

1. Load, transport, and install all state-furnished materials per the manufacturer's instructions and as shown in the plans.
2. Provide Luminaire Pole Foundation, Type II-PC junction box, ground rod, grounding lug, conduit, stainless steel mounting bands, and all additional equipment required for a complete and operational NID System.
3. Install all wiring, conduit, and junction boxes as shown on site plans and details.
    a. Field locate all conduits per Section 13553 and junction boxes to avoid drainage areas and steep slopes whenever possible.
    b. Protect existing conductors while installing NID cables and conductors.
4. Connect the NID and all wires as specified by the manufacturer.
5. Furnish and install all incidental items, such as wire nuts, grommets, tape connectors, and electrical nuts, necessary to make the NID Assembly complete.
6. After installation, the exterior of all equipment must be free of all loose rust and mill scale, dirt, oil, grease and other foreign substances.

B. STEEL LUMINAIRE POLE FOUNDATION

1. All material and workmanship conforms to AASHTO's Standard Specifications for Highway Bridges.
2. Verify that the installation of the NID, pole, junction boxes, and foundation in the location marked in the field has no conflict with existing utilities, underground and overhead. Comply with all utility and blue stake requirements.
3. Excavation -- Refer to Section 13551.
4. Caissons conform to AASHTO Division II Section 5, Drilled Piles and Shafts. Drill caissons into either native soil or compacted fill.
   a. If formwork is required during drilling, the forms may be withdrawn during concrete placement.
   b. Cast the top of the caisson against the formwork for appearance.
5. Place concrete directly into the excavation. Use minimum forming.
6. Do not weld reinforcing steel, conduit, or anchor bolts; tie reinforcing steel and conduit securely in place.
7. Coat all reinforcing steel to conform to AASHTO M 284 or M 111 and AASHTO M 31 Grade 420, respectively. Coat the ends of cut reinforcing with approved coating.
8. All cast-in-place concrete will be class AA(AE) except where specified otherwise. Cap all conduits before placing concrete.
9. After pole is installed, place non-shrink grout between base plate and foundation surface.
10. Install weep hole in foundation per SL series Standard Drawings.
11. Install Contractor Furnished rain tight cap on top of Luminaire Steel Pole.
12. Provide for 2-2 inch conduits through foundation from base plate to adjacent Type II – PC Junction Box.

C. ANCHOR BOLTS

1. Refer to ASTM A 307 and Section 13551.

D. STEEL LUMINAIRE POLE

1. Install the steel Luminaire poles on concrete bases as described herein. Apply rust, corrosion, and anti-seize protection at all threaded assemblies by coating the mating surfaces with an approved compound.
2. Refer to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Highway Bridges, as well as AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.
3. Install pole such that the hand hole is facing away from traffic.
4. Install ground rod. NEC 250.1.

5. Use stainless steel for all fasteners and attachment hardware for bands and other equipment.
6. Furnish and install all incidental items, such as wire nuts, grommets, tape connectors, electrical nuts, etc., necessary to make the NID Assembly complete.
7. Adjusting the anchor bolt nuts, plumb all steel poles to the vertical with all NID equipment installed.

E. NON-INTRUSIVE DETECTOR ASSEMBLY

1. Assemble NID and prepare for installation per the manufacturer's instructions prior to delivery to the job site.
2. Deliver the NID to the job site as complete units, and install as per the plan details.

F. NON-INTRUSIVE DETECTOR CABINET MOUNTED EQUIPMENT

1. Install Cabinet Mounted Equipment, including Lightening Suppressors, Suppression/Splice Box, AC Adaptor, Channel Contact Closure Cards according to manufacturer's instructions and project details.

G. NID CABLE ALONG POLE

1. Install NID cables in conduit and poles. All cable runs must be continuous and must run without splices between the NID and the Junction Box.
2. Keep cable ends sealed at all times during installation using an approved cable end cap.
3. Do not violate the minimum bending radius and the maximum pulling tension recommended by the manufacturer's specifications at any time.
4. Provide 6 ft of cable slack in all Junction Boxes.
5. Provide Drip Loop immediately below NID.
6. Install Neoprene Grommet / Watertight Cable Clamp to pre-drilled hole.

H. JUNCTION BOX

1. Install Type II Junction Box per Section 13554 - Polymer Concrete Junction Box requirements.
2. Conduit connection to Junction Box: Seal conduit with waterproof bushings. Refer to Section 13553 - ATMS Conduit.
3. Fill voids resulting from entrance of conduit into junction box with hydraulic cement grout. Refer to Section 13554 - Polymer Concrete Junction Box.
4. Field locate junction box to avoid drainage areas and steep slopes.

I. All work done in accordance with the National Electric Code (NEC).

3.3 NID ASSEMBLY TYPE II

A. INSTALLATION

1. Load, transport, and install all state-furnished materials per the manufacturer's instructions and as shown in the plans.
2. Provide Type II-PC junction box, conduit, stainless steel mounting bands, and all additional equipment required for a complete and operational NID System.
3. Install all wiring, conduit, and junction boxes as shown on site plans and details.
   a. Field locate all conduits per Section 13553 and junction boxes to avoid drainage areas and steep slopes whenever possible.
   b. Protect existing conductors while installing NID cables and conductors.
4. Connect the NID and all wires as specified by the manufacturer.
5. Furnish and install all incidental items, such as wire nuts, grommets, tape connectors, and electrical nuts, necessary to make the NID Assembly complete.
6. After installation, the exterior of all equipment must be free of all loose rust and mill scale, dirt, oil, grease and other foreign substances.

B. NON-INTRUSIVE DETECTOR ASSEMBLY

1. Assemble NID and prepare for installation per the manufacturer's instructions prior to delivery to the job site.
2. Deliver the NID to the job site as complete units, and install as per the plan details.

C. NON-INTRUSIVE DETECTOR CABINET MOUNTED EQUIPMENT

1. Install Cabinet Mounted Equipment, including Lightening Suppressors, Suppression/Splice Box, AC Adaptor, Channel Contact Closure Cards according to manufacturer's instructions and project details.

D. NID CABLE ALONG POLE

1. Install NID cables in existing conduit and within existing poles. All cable runs must be continuous and must run without splices between the NID and the Junction Box.
2. Keep cable ends sealed at all times during installation using an approved cable end cap.
3. Do not violate the minimum bending radius and the maximum pulling tension recommended by the manufacturer's specifications at any time.
4. Provide 6 ft of cable slack in all Junction Boxes.
5. Provide Drip Loop immediately below NID.

6. Drill hole to existing steel pole and install Neoprene Grommet / Watertight Cable Clamp.

E. JUNCTION BOX

1. Install Type II Junction Box per Section 13554 - Polymer Concrete Junction Box requirements.
2. Conduit connection to Junction Box. Seal conduit with waterproof bushings. Refer to Section 13553 - ATMS Conduit.
3. Fill voids resulting from entrance of conduit into junction box with hydraulic cement grout. Refer to Section 13554 - Polymer Concrete Junction Box.
4. Field locate junction box to avoid drainage areas and steep slopes.

F. All work done in accordance with the National Electric Code (NEC).

3.4 NID ASSEMBLY TYPE III

A. INSTALLATION

1. Load, transport, and install all state-furnished materials per the manufacturer's instructions and as shown in the plans.
2. Provide Type II-PC junction box, conduit, stainless steel mounting bands, and all additional equipment required for a complete and operational NID System.
3. Install all wiring, conduit, and junction boxes as shown on site plans and details.
   a. Field locate all conduits per Section 13553 and junction boxes to avoid drainage areas and steep slopes whenever possible.
   b. Protect existing conductors while installing NID cables and conductors.
4. Connect the NID and all wires as specified by the manufacturer.
5. Furnish and install all incidental items, such as wire nuts, grommets, tape connectors, and electrical nuts, necessary to make the NID Assembly complete.
6. After installation, the exterior of all equipment must be free of all loose rust and mill scale, dirt, oil, grease and other foreign substances.

B. NON-INTRUSIVE DETECTOR ASSEMBLY

1. Assemble NID and prepare for installation per the manufacturer's instructions prior to delivery to the job site.
2. Deliver the NID to the job site as complete units, and install as per the plan details.

C. NON-INTRUSIVE DETECTOR CABINET MOUNTED EQUIPMENT

1. Install Cabinet Mounted Equipment, including Lightening Suppressors, Suppression/Splice Box, AC Adaptor, Channel Contact Closure Cards according to manufacturer's instructions and project details.

D. CONDUIT

1. Above ground and within 6" of ground surface use galvanized rigid steel; under ground use PVC.
2. Secure conduit on existing poles with standard galvanized iron conduit clamps at maximum 5 ft spacing.

E. NID CABLE ALONG POLE

1. Install NID cables in conduit attached to existing poles. All cable runs must be continuous and must run without splices between the NID and the Junction Box.
2. Keep cable ends sealed at all times during installation using an approved cable end cap.
3. Do not violate the minimum bending radius and the maximum pulling tension recommended by the manufacturer's specifications at any time.
4. Provide 6 ft of cable slack in all Junction Boxes.
5. Provide Drip Loop immediately below NID
6. Drill hole to existing pole and install Neoprene Grommet / Watertight Cable Clamp.

F. JUNCTION BOX

1. Install Type II Junction Box per Section 13554 - Polymer Concrete Junction Box requirements.
2. Conduit connection to Junction Box. Seal conduit with waterproof bushings. Refer to Section 13553 - ATMS Conduit.
3. Fill voids resulting from entrance of conduit into junction box with hydraulic cement grout. Refer to Section 13554 - Polymer Concrete Junction Box.
4. Field locate junction box to avoid drainage areas and steep slopes.

G. All work done in accordance with the National Electric Code (NEC).

3.5 NID CABLE

A. When installing conduit or conduit sweeps, do not allow conduit to deflect vertically or horizontally along its length by a ratio greater than 10:1, (e.g. no

more than 4-inch deflection per 40 inch in length). Install all conduit bends to have a radius that is not less than 3 ft.

B. Do not place conduit directly above parallel utilities.

C. Locate conduit within 1 ft of existing parallel conduit run if the planned location of conduit is parallel to the existing traffic signal or ATMS conduit. Refer to Section 02892 – Traffic Signal.

D. Install conduits that cross-finished curbs and gutters, sidewalks, concrete flatwork, textured or decorative surfaces by boring, jacking, or drilling. Entirely replace any damaged section at no additional cost to the Department.

E. Install NID Cable in accordance with manufacturer's recommendations

3.6 SURFACE RESTORATION

A. Restore impacted surfaces under pavement as follows:
1. Backfill all excavated areas with Flowable Fill in accordance with Section 03575 – Flowable Fill requirements to sufficient depth to meet asphalt surfacing requirements.
2. Prior to pouring flowable fill, anchor the conduit in trench to maintain the required conduit depth during pour.
3. Utilize HMA – ¾ inch in accordance with Section 02741 – Hot Mix Asphalt (HMA) requirements for all pavement repairs.
4. Repair pavement to the thickness specified in the following table.

Existing Pavement Thickness	Depth of Pavement Repair Required
Less than 4 inches	4 inches
4 inches to 7 inches	Match Existing
Greater than 7 inches	7 inches

B. Restore impacted curb and gutter as follows:
1. Restore curb and gutter in accordance with Section 02771 - Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.

C. Restore landscaped / sodded areas as follows:
1. Document landscaped areas with digital photographs prior to disturbance. Forward digital photos to engineer for reference.
2. Remove, preserve, and protect vegetation within disturbance limits for restoration following construction.
3. Preserve and protect irrigation facilities within disturbance limits.

4. Restore irrigation system to operating condition prior to re-vegetation.
5. Place a minimum of 4” of Topsoil per Section 02912 – Topsoil requirements prior to replanting any landscaping feature.
6. Restore stripped Sod, or upon unacceptability of stripped sod as determined by Engineer, replace with new Sod in accordance with Section 02922 – Seed, Turf Seed, and Turf Sod requirements.
7. Restore Shrubs, Trees, or other impacted groundcovers removed during construction, or replace said vegetation upon unacceptability for restoration as determined by Engineer, all in accordance with Section 02932 – Trees, Shrubs, and Groundcovers requirements.

D. Restore areas not covered in items A-C above that were impacted or damaged during conduit and junction box installation to match conditions that existed prior to construction disturbance.

3.7 TESTING AND ACCEPTANCE

A. Perform system testing in accordance with Section 13598 – NID Integration requirements.

END OF SECTION

August 21, 2005

SPECIAL PROVISION

PROJECT # CM-LC49(86)

SECTION 16711S

TRAFFIC SIGNAL MODIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Install, modify, and replace; traffic control equipment in various configurations to complete Traffic Signal Modifications as shown on the plans and details.

B. Includes all materials, labor, workmanship, equipment, and incidental items required to modify traffic signals at specific locations.

C. Includes the pickup, loading, transfer, and installation of State Furnished equipment.

1.2 RELATED SECTIONS

A. Section 0725: Scope of Work

B. Section 01554: Traffic Control

C. Section 02705: Pavement Cutting

D. Section 02741: Hot Mix Asphalt (HMA)

E. Section 02771: Curbs, Gutters, Driveways, Pedestrian Access Ramps, and Plowable End Sections

F. Section 02776: Concrete Sidewalk, Median Filler and Flatwork

G. Section 2892: Traffic Signal

H. Section 2912: Topsoil

I. Section 02922: Seed, Turf Seed, and Turf Sod

J. Section 02932: Trees, Shrubs, and Groundcovers

K. Section 03055: Portland Cement Concrete

L. Section 03211: Reinforcing Steel and Welded Wire

M. Section 03310: Structural Concrete

N. Section 03575: Flowable Fill

O. Section 13551: General ATMS Requirements

P. Section 13553: ATMS Conduit

Q. Section 13554: Polymer Concrete Junction Box

R. Section 13555: ATMS Cabinet

S. Section 13556: Close Circuit Television (CCTV) Assembly

T. Section 13595: ATMS Integration

U. Section 16525: Highway Lighting

1.3 REFERENCES

A. American Iron and Steel Institute (AISI)

B. American National Standards Institute (ANSI)

C. Electric Utility Service Equipment Requirements Committee (EUSERC)

D. National Electric Code (NEC)

E. National Electrical Manufacturers Association (NEMA)

F. Pedestrian Traffic Control Signal Indicator (PTCSI) Standard

G. Rural Electrical Association (REA) Bulletin

H. Underwriters Laboratory (UL)

1.4 SUBMITTALS

A. Lighting – Refer to Section 16525: Highway Lighting, Article 1.4 requirements

B. Signals - Refer to Section 02892 – Traffic Signal, Article 1.4 for requirements.

C. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly, Article 1.4 and Section 13551 – General ATMS Requirements, Article 1.5 requirements.

D. ATMS – Refer to Section 13551: General ATMS Requirements, Article 2.2 requirements.

E. NID Assembly – Refer to Section 13551: General ATMS Requirements Article 1.5 requirements and Section 16136S: NID Assembly Type __, Article 1.4 requirements.

1.5 ACCEPTANCE

A. Lighting – Refer to Section 16525: Highway Lighting Article 1.6 requirements

B. Signals - Refer to Section 2892: Traffic Signal Article 1.5 requirements

C. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly, requirements.

D. ATMS – Refer to Section 13551: General ATMS Requirements, Article 1.6 requirements.

E. Refer to Section 13595: ATMS Integration

PART 2 PRODUCTS

2.1 GENERAL MATERIALS

A. Use electrical components as listed and defined by the National Electric Code (NEC).

2.2 BOLTS AND NUTS

A. Follow SL series Standard Drawings.

B. Signals - Refer to Section 02892 – Traffic Signal for requirements

C. Lighting - Refer to Section 16525: Highway Lighting requirements

D. CCTV Poles Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly and Section 13551 – General ATMS Requirements.

E. Controller Cabinets – Refer to Section 13555: ATMS Cabinet, Article 2.2

2.3 WIRE

A. Lighting – Refer to Section 16525: Highway Lighting, Article 2.1 requirements

B. Signals - Refer to Section 02892 – Traffic Signal for requirements.

C. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly and Section 13551 – General ATMS Requirements

D. ATMS – Refer to Section 13551: General ATMS Requirements, Article 2.2 requirements.

E. NID Assembly – Refer to Section 13551: General ATMS Requirements, Article 2.2 requirements

F. Video Detection Circuit:
   1. Camera circuit cable - Belden 8281 or equivalent, coaxial cable, RG 59/U Type 20 AWG
   2. Camera power circuit - 4-conductor, 14AWG SJOW cable, IMSA specification 20-1

2.4 ELECTRICAL CONDUIT

A. Refer to Section 02892 – Traffic Signal for requirements.

2.5 GROUND ROD

A. Follow SL series Standard Drawings.

B. Refer to Section 02892 – Traffic Signal for requirements.

2.6 MOUNTING BANDS AND BUCKLES

A. Follow SL series Standard Drawings.

B. Refer to Section 02892 – Traffic Signal for requirements.

2.7 POWER SOURCE

A. Follow SL series Standard Drawings.

B. Refer to Section 16525: Highway Lighting requirements

2.8 PEDESTRIAN SIGNAL SYSTEM

A. Follow SL series Standard Drawings.

B. Refer to Section 02892 – Traffic Signal for requirements.

C. Pedestrian Signal Pole (Slip Base), State Furnished

D. LED Pedestrian Head Lens, State Furnished

E. Pedestrian Heads, State Furnished

2.9 LUMINAIRE, LUMINAIRE BALLASTS, LAMP, POLES, AND EXTENSIONS

A. Follow SL series Standard Drawings.

B. Refer to Section 16525: Highway Lighting for requirements

C. Luminaire Pole, Slip Base, State Furnished

D. Luminaire Extension, State Furnished

E. Luminaire Arm, State Furnished.

2.10 VIDEO DETECTION CIRCUIT

A. Provide cabling and install State-Furnished video detection equipment as shown in the plans to construct a complete and operational video detection circuit at each intersection.

B. Install in existing conduit.

C. Provide all additional mounting brackets, termination boxes, and other equipment, material and labor necessary to construct a complete and operational video detection circuit per manufacturer recommendations.

D. Follow SL series Standard Drawings as applicable.

2.11 TRAFFIC SIGNAL CABINET

A. State Furnished

B. NEMA TS 2, Type 1, Size 6

2.12 TRAFFIC SIGNAL CONTROLLER

A. State Furnished

B. 8 Phase with NEMA TS 2, Type 1

2.13 ATMS COMMUNICATION EQUIPMENT

A. Install State Furnished equipment as shown in the plans.

B. Furnish and install all additional incidental materials necessary to complete an operational system.

2.13 JUNCTION BOXES

A. Per Section 13554 - Polymer Concrete Junction Box

2.14 FLOWABLE FILL

A. Refer to Section 03575 – Flowable Fill

2.15 HOT MIX ASPHALT

A. Half inch maximum

B. Refer to Section 02741 - Hot Mix Asphalt (HMA)

2.16 CONCRETE SIDEWALK, DECORATIVE SIDEWALK, AND FLATWORK

A. Refer to Section 02776 - Concrete Sidewalk, Median Filler and Flatwork

2.17 CONCRETE CURB AND GUTTER

A. Refer to Section 02771 - Curbs, Gutters, Driveways, Pedestrian Access Ramps, and Plowable End Sections.

2.18 TOPSOIL

A. Refer to Section 02912 - Topsoil

2.19 TURF SOD

A. Refer to Section 02922 - Seed, Turf Seed, and Turf Sod

2.20 CONCRETE

A. Class A (AE) concrete as specified

B. Class AA (AE) concrete as specified

C. Refer to Section 03055 Portland Cement Concrete and Section 03310 Structural Concrete.

2.21 REINFORCING STEEL

A. Epoxy Coated

B. AASHTO M 284 or M 111, AASHTO M 31 Grade 400

PART 3 EXECUTION

3.1 GENERAL PREPARATION

A. Understand plans and details are diagrammatic and depict traffic signal modifications in schematic form only. Base final routing and installation on actual field conditions adapted in the field at the time of construction to meet their intended purpose and to minimize and prevent conflicts with existing features and utilities as approved by Engineer.

B. Conform to the National Electrical Code (NEC).

C. Pick up State-furnished materials

1. Pick up State Furnished Controller Cabinet and Controller Equipment at Region Signal Lab. Contact Grant Jackson, 801-227-8040 ten (10) days in advance of desired pick up date.

2. Pick up remaining supplies at the Department's Central Warehouse, 4501 South 2700 West, Salt Lake City, UT. Contact Brad Cameron, 801-887-3719 ten (10) days in advance of desired pick up date for all State Furnished ATMS Materials. Contact Doug Sneddon 48 hours in advance to schedule pickup of all State Furnished materials.

3. Furnish loading equipment and personnel to load State Furnished materials.

D. Place and maintain traffic control in accordance with Section 01554 - Traffic Control requirements.

E. Saw cut concrete or other improved surfaces removed in the construction area, and replace with in-kind materials to match the existing grade.

3.2 REMOVE AND SALVAGE EXISTING TRAFFIC SIGNAL AND ATMS EQUIPMENT

A. Controllers, controller cabinets, ATMS equipment and other items remain the property of Provo City or the Department and may be reused.

B. Salvage and transport items to the specified location.

1. Return Provo City Salvage items, contact Casey Serr, 801-852-6742 to coordinate delivery
2. Return UDOT Salvage items, contact Grant Jackson, 801-227-8040 to coordinate delivery.

3.3 REMOVE SIGNAL CONTROLLER FOUNDATION

A. Remove all abandoned foundations to a depth of at least 6 inches below the existing surface.

B. Backfill all excavated holes with local material and compact to the density of the surrounding area.

3.4 REMOVE JUNCTION BOX

A. Backfill all excavated holes with local material and compact to the density of the surrounding area.

3.5 TRENCH FOR CONDUIT

A. Paved Surface (asphalt concrete):
   1. Do not use backhoe.
   2. Make the trench 6 inches wide or less.
   3. Use flowable fill for all trench backfill
   4. Evenly apply tack coat before final surfacing
   5. Match the composition, density, and elevation (± 3/16 inch) of the existing surface in the final 3 inches of backfill.

B. Unpaved Surface:
   1. Use backfill that matches the composition, density, and elevation (± 3/16 inch) of the existing surface.
   2. Install conduits that cross finished curbs and gutters, sidewalks, concrete flatwork, textured or decorative surfaces by jacking, drilling, or pushing. Entirely replace any damaged section at no additional cost to Department.
   3. Dispose of surplus material daily.

C. Minimum cover of conduit:
   1. Minimum cover for all roadway crossings: 2 ft
   2. Minimum cover off roadway without concrete encasement or capping: 18 inches.
   3. Minimum cover off roadway with concrete encasement or capping with minimum thickness of 2 inches: 12 inches.

3.6 INSTALL CONDUIT

A. Signals - Refer to Section 02892 – Traffic Signal for requirements. Follow SL series Standard Drawing.

B. Lighting - Refer to Section 16525: Highway Lighting requirements. Follow SL series Standard Drawing.

C. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly and Section 13551 – General ATMS Requirements. Follow AT series Standard Drawing.

D. Place all conduits in the same trench before surfacing.

E. Above ground use galvanized rigid steel; under ground use PVC.

F. Seal uncapped conduit ends inside junction box with at least 2 inches of duct caulking.

3.7 INSTALL WIRING

A. Signals - Refer to Section 02892 – Traffic Signal for requirements. Follow SL series Standard Drawing

B. Lighting - Refer to Section 16525: Highway Lighting requirements. Follow SL series Standard Drawing

C. CCTV - Refer to Section 13556 – Closed Circuit Television (CCTV) Assembly and Section 13551 – General ATMS Requirements. Follow AT series Standard Drawing

3.8 GROUNDING ROD

A. Per plan locations

B. Follow SL series Standard Drawings

C. Refer to Section 2892: Traffic Signals

3. 9 JUNCTION BOX

A. As specified

B. Follow SL series Standard Drawings

C. Refer to Section 16525: Highway Lighting requirements and Section 02892: Traffic Signal requirements.

3.10 CONCRETE PAVEMENT SAWING

A. Refer to Section 02705: Pavement Cutting

3.11 TYPE 6 CABINET FOUNDATION

A. Field locate cabinet location with the Engineer. Avoid areas with poor drainage. Satisfy clear zone requirements.

B. Follow SL 10 and related SL series Standard Drawings

C. Follow AT Series Standard Drawings

D. Refer to Section 13555: ATMS Cabinet, Part 3 for requirements.

E. Restore surface to match in kind the surrounding landscaping.

3.12 REMOVE TYPE 6 CABINET FOUNDATION

A. Extend conduits from existing junction boxes to new polymer concrete box and new foundation installed as part of work performed as TYPE 6 CABINET FOUNDATION.

B. Splice connections, conductors, and cables for traffic signals, street lighting, power supply conductors and other cabling and extend to new signal cabinet and devices therein.

C. Do not splice Video Detection Camera coaxial cables. Pull new State Furnished Video Detection Camera Cable from camera to cabinet.

D. Obliterate existing foundation.

E. Remove conduits and junction boxes not required.

F. Follow Detail and SL series Standard Drawings.

G. Refer to Section 13555: ATMS Cabinet, Part 3 for requirements.

H. Restore surface surrounding new cabinet foundation, and upon site of removed foundation, to match in kind the surrounding landscaping.

3.13 EXTEND TYPE 6 CABINET FOUNDATION

A. Adjust existing cabinet foundation and extend to conform to standards for Type 6 Cabinet Foundation.

B. Remove existing features that interfere with extension and adjustment of cabinet foundation.

C. Field locate cabinet extension with the Engineer. Satisfy clear zone requirements. Extend Cabinet Foundation as approved by Engineer

D. Extend Cabinet Foundation in accordance with Detail, SL series and AT series Standard Drawings.

E. Extend Cabinet Foundation in accordance with Section 13555: ATMS Cabinet, Part 3 for requirements

F. Restore surface surrounding cabinet foundation as extended to match in kind the surrounding landscaping.

3.14 TRAFFIC SIGNAL CABINET

A. Load, transport, and install State Furnished material per plan locations

B. Utilize NEMA TS 2, Type 1 Size 6

C Refer to SL series Standard Drawings

D. Refer to Section 02892 – Traffic Signal for requirements.

E. Refer to Article 3.2 for Salvage Instructions.

3.15 TRAFFIC SIGNAL CONTROLLER

A. Load, transport, and install State Furnished material per plan locations

B. Utilize 8 Phase with NEMA TS 2, Type 1

C Refer to SL series Standard Drawings.

D. Refer to Section 02892 – Traffic Signal for requirements.

E. Refer to Article 3.2 for Salvage Instructions.

3.16 POWER SOURCE

A. Contact Provo Power [Mr. Travis Ball @ 801-852-6921 at least 30 days before the connection date. Verify the exact location, voltage, procedure, and materials required by the power company.

B. Follow SL series Standard Drawings.

C. Refer to Section 16525: Highway Lighting.

3.17 LIGHT POLE FOUNDATION

A. Per plan locations.

B. Follow SL series Standard Drawings.

C. Refer to Section 16525: Highway Lighting requirements.

3.18 LUMINAIRE POLE

A. Load, transport, and install State Furnished material per plan locations.

B. Follow SL series Standard Drawings.

C. Refer to Section 16525: Highway Lighting requirements.

3.19 LUMINAIRE EXTENSION

A. Load, transport, and install State Furnished material per plan locations.

B. Follow SL series Standard Drawings.

C. Refer to Section 16525: Highway Lighting requirements.

3.20 LUMINAIRE, LUMINAIRE BALLAST, AND LAMP

A. As specified.

B. Follow SL series Standard Drawings.

C. Refer to Section 16525: Highway Lighting requirements.

3.21 ROTATE LUMINAIRE

A. Rotate Luminaire as specified in the Construction Drawings.

B. Use caution to prevent damage to existing wiring.

C. Replace any wiring damaged by construction activities from Luminaire to Power Source.

D. Adhere to Section 16525: Highway Lighting requirements.

3.22 VIDEO DETECTION

A. Load and transport State Furnished equipment per plan locations.

B. Remove loop detection conductors from conduits and cabinet.

C. Install State-Furnished video detection equipment as shown in the plans to construct a complete and operational video detection circuit at each intersection

D. Provide all additional mounting brackets, termination boxes, and other equipment, material and labor necessary to construct a complete and operational video detection circuit per manufacturer recommendations.

E. As designated on the plans, replace existing Video Detection Camera utilizing State Furnished camera, existing camera mount and existing cable where possible.

F. Mount each video detection camera on the signal mast arm in a location that will provide a free, unobstructed view as directed by the Engineer. Mount each video detection camera on the signal mast arm using the State-Furnished 46-inch extension pole and mounting bracket. Refer to SL series Standard Drawings.

G. Aim and set camera position and program detection areas as directed by the Engineer.

3.23 RELOCATE VIDEO DETECTION TO MAST ARM

A. Disconnect and Remove Video Detection equipment and appurtenances from existing location.

B. Relocate video detection equipment per plan details and at specified locations, using State Furnished video detection mounts, to construct a complete and operational video detection circuit at each intersection

C. Install new State Furnished Video Detection Cable Assembly (90’ Pigtail) to Signal Pole Base.

D. Provide necessary components including wiring and other connections to relocate Video Detection to the mast arm as specified in the Construction Drawings. Install new State Furnished Video Detection Cable Assembly (90’ Pigtail) to Signal Pole Base.

E. Provide all additional mounting brackets, termination boxes, and other equipment, material and labor necessary to relocate and restore a complete and operational video detection circuit per manufacturer recommendations.

F. Remount each video detection camera on the signal mast arm in a location that will provide a free, unobstructed view as directed by the Engineer. Mount each video detection camera on the signal mast arm using the State-Furnished 46-inch extension pole and mounting bracket. Refer to SL series Standard Drawings.

G. Aim and set camera position and program detection areas as directed by the Engineer.

3.24 ATMS COMMUNICATIONS

A. Install State Furnished communications equipment including Port Server, Ethernet Switch, and additional equipment as shown in the plans.

B. Install State Furnished Fiber Optic Drop Cable with Fan Out Kit. Refer to Section 13594: Fiber Optic Communications

C. Provide and install Fiber Optic Cable Splice Enclosure at locations as shown on the plans. Refer to Section 13594: Fiber Optic Communications

D. Contractor to install Communication Cable and other incidentals to complete a fully functional system.

E. Follow SL series and AT series Standard Drawings.

F. Verify proper operation. Refer to Section 13595: ATMS Integration requirements

3.25 PEDESTRIAN SYSTEM

A. Load, transport, and install State Furnished equipment per plan locations.

B. Install contractor furnished pole foundations, conductors and detection circuits, and incidentals as necessary to provide a fully functioning Pedestrian System.

C. Refer to SL series Standard Drawings.

D. Refer to Section 02892 – Traffic Signal for requirements.

3.28 RELOCATE PRIORITY CONTROL

A. Remove existing priority control equipment from Traffic Control Cabinet and reinstall in new cabinet according to manufacturer's recommendations.

3.29 ATMS INTEGRATION

A. Refer to Section 13595: ATMS Integration requirements

3.30 SURFACE RESTORATION

A. Restore all areas, including landscaping, concrete pavement, asphalt, finished curbs and gutters, box culverts, sewers, underground water mains, sprinkler systems, sidewalks, concrete flatwork, textured or decorative surfaces damaged during conduit and junction box installation.

B. Restore impacted surfaces under pavement as follows:

1. Backfill all excavated areas with Flowable Fill in accordance with Section 03575 – Flowable Fill requirements to sufficient depth to meet asphalt surfacing requirements.
2. Prior to placement of flowable fill, anchor any conduit in trench to maintain the required conduit depth during pour.
3. Utilize HMA – ½ inch in accordance with Section 02741 – Hot Mix Asphalt (HMA) requirements for all pavement repairs.
4. The required thickness or depth of all pavement repairs is governed by the following table:

Existing Pavement Thickness	Depth of Pavement Repair Required
Less than 4 inches	4 inches
4 inches to 7 inches	Match Existing
Greater than 7 inches	7 inches

C. Replace existing sidewalk or curb and gutter to match the existing cross section and grade in a condition equal to or better than the preconstruction installation as follows

D. Restore curb and gutter in accordance with Section 02771 - Curbs, Gutters, Driveways, Pedestrian Access Ramps, And Plowable End Sections.

E. Replace entire sections of decorative sidewalk where trenching is necessary. Patching of decorative sidewalk will not be allowed.

F. Restore landscaped / sodded areas as follows:

1. Document landscaped areas with digital photographs prior to disturbance. Forward digital photos to engineer for reference.
2. Remove, preserve, and protect vegetation within disturbance limits for restoration following construction.
3. Preserve and protect irrigation facilities within disturbance limits.
4. Restore irrigation system to operating condition prior to re-vegetation.
5. Place a minimum of 4” of Topsoil per Section 02912 – Topsoil requirements prior to replanting any landscaping feature.
6. Restore stripped Sod, or upon unacceptability of stripped sod as determined by Engineer, replace with new Sod in accordance with Section 02922 – Seed, Turf Seed, and Turf Sod requirements.
7. Restore Shrubs, Trees, or other impacted groundcovers removed during construction, or replace said vegetation upon unacceptability for restoration as determined by Engineer, all in accordance with Section 02932 – Trees, Shrubs, and Groundcovers requirements.

G. Restore areas not covered in items A-F above damaged during conduit and junction box installation to match conditions that existed prior to construction disturbance.

H. Coordinate with local utilities for utility repair. Advise the Engineer of all repairs.

END OF SECTION